A FREE OPERANT ANALYSIS OF PROGRAMED INSTRUCTION PERFORMANCE WITH READING DISABLED CHILDREN

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This dissertation is dedicated to

Ogden R. Lindsley

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This dissertation is the first installment on my debt to Professor Ogden R. Lindsley.

Carl Koenig and John Nichol of the Behavior Bank (P.O. Box 3351, Kansas City, Kansas) deserve enthusiastic applause from the Florida group for their brilliant efforts in educational science. The data in this dissertation could not have been presented without their invaluable assistance.

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Charlotte Gregory is priceless.

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"Throughout history, various sects have arisen and flourished in an attempt to repeal some law of nature. Humanism in psychology is a current example -- its existence is prolonged by each discovery of a lawful aspect of human behavior."

H. S. Pennypacker
December, 1968

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TABULAR CODE

SRP-BC - Programed Reader, Before Phase Correct
SRP-DC - Programed Reader, During Phase Correct
SRP-AC - Programed Reader, After Phase Correct
SRP-BI - Programed Reader, Before Phase Incorrect
SRP-DI - Programed Reader, During Phase Incorrect
SRP-AI - Programed Reader, After Phase Incorrect

DT-BC - Diagnostic Test, Before Phase Correct
DT-DC - Diagnostic Test, During Phase Correct
DT-AC - Diagnostic Test, After Phase Correct
DT-BI - Diagnostic Test, Before Phase Incorrect
DT-DI - Diagnostic Test, During Phase Incorrect
DT-AI - Diagnostic Test, After Phase Incorrect

Chapter I

INTRODUCTION

Education is exclusively concerned with behavior change for the purpose of developing and maintaining complex repertoires of culturally-valued human behavior. In order to evaluate the effectiveness of its procedures, education must have a reliable and sensitive method for describing and measuring the behavior changes it produces. Currently, such evaluation is performed almost totally by psychometry -- psycho-educational tests and rating scales. Despite its undoubted importance historically, psychometry has now been shown to have serious shortcomings of both an empirical and ethical nature. These deficits have been examined in great detail by Hoffman (1962, 1965, 1967). Hoffman's documented discussions include statistical misuse in the development of tests, misuse of test results, fallacies in the use of pre-tests, as well as the corrupting effects tests have on educational practice.

Despite these deficits, educators continue to use psycho-educational tests and rating scales in most evaluation research, apparently because they are unaware of more acceptable alternatives. Tests and rating scales are used to evaluate behavior changes in children, teachers, and school administrators, as well as to assess the effects

of curricula and teaching methods on behavior. With the partial exception of achievement tests, psychometric procedures never directly measure the behavior in question. Unfortunately, the trend in recent years would seem to be away from more simple and direct measures of behavior and toward procedures which rely highly on indirect measurement and a complex chain of inferential statements mediated by hypothetical constructs. The Illinois Test of Psycholinguistic Abilities is an example of this trend.

The present dissertation seeks to utilize free operant technology, in particular the direct and continuous recording of pupil performance, to evaluate and analyze a programed instruction curriculum material. At the same time, the records gathered can be used to further understand free operant technology itself. Therefore, the dissertation will describe not only human behavior change as a function of the programed material, but it will describe the effects of the technology on pupil performance rates. The findings of this type of research are directly applicable to children and may be directly related to further applications in which the evaluation of educational procedures is of concern.

Related Research

The Evaluation of Programed Instruction

A review of the literature relating to the evaluation of programed instruction reveals that there is no generally accepted method available. There are, however, several methods which are used with some frequency.

The first of these is the checklist. Although Newman (1965) has recommended against the development and use of checklists without first having conducted exhaustive research on their reliability and validity, the checklist has nevertheless become the most popular and convenient method of evaluating programed instruction.

Before 1963, checklists were commonly created by individual researchers for their own purposes (Fry, 1963; Hughes, 1962). Most of these checklists were quite heterogeneous, and rested more on considered opinion and theoretical orientation than on empirical research.

In 1962, The Joint Committee for Criteria for Assessing Instructional Programs began publishing checklists for use in evaluating programed instruction. These lists were revised yearly by the committee, on the basis of their demonstrated utility in the applied situation. The absence of systematic research in evaluating checklists produced an instrument that was, at best, crude.

Other checklists were later developed (Jacobs, Maier, and Stolurow, 1966), but in the final analysis, the Joint Committee's checklist has become the standard in the field. It has been endorsed by both the National Society for the Study of Education (NSSE) and the Division of Audio-visual Instruction (DAVI) of the National Educational Association, the two organizations most concerned with quality standards in education.

Ironically enough, the chief rival of the Joint Committee's checklist is another well-respected educational standard that was not developed specifically for evaluating

instruction. Bloom's Taxonomy of Educational Objectives (1956) has been repeatedly invoked as the evaluative standard form a "cognitive" point of view. The chief spokesman for this type of evaluation is Louise Tyler (1966). Not satisfied with theory only, she has reported some data on its use by teachers already familiar with the taxonomy. Newman (1965) has used it to evaluate programed instruction in the Social Studies.

The second method of evaluation that can be distinguished might more properly be called the comparison procedure. It generally takes the form of comparing programed instruction with traditional teaching methods, or programed texts with standard texts.

Schramm (1964) indicates that much of the evaluative research done in programed instruction is of this nature. An examination of Educational Abstracts confirms this statement for the subsequent years. The difficulty, however, is that comparison, as a research method, reveals little or nothing about the programed instructional material per se. Nevertheless, the Joint Committee recommends comparison as a method for the external validation of programed material, and it may be an acceptable procedure for this task.

Another difficulty with comparison studies lies in the nature of the research design employed. It is almost impossible, in this type of research, to control for individual differences in children and in teachers, and its even more difficult to control for differences in content.

The majority of research of the comparative type, as Schramm notes, is so poorly done that little faith can be placed in the validity of the results. There are fortunate exceptions, particularly with regard to exceptional child populations. Blackman and Copobianco (1965), for example, report on the use of a specific programed material with retarded children. Likewise, Rainey and Kelly (1967) report the use of a time-telling program with educable retardates, and Streng (1964) reports evaluating a program with deaf opulations. This research is child-oriented and involves the determination of the utility of a specific program for developing a defined behavior in a given exceptional child population. The utility of this type of research for the practicing classroom teacher should not be under-estimated.

Closely related to the programed instruction with "other" comparison, is the programed instruction with achievement test comparison. Normally, the test used is one of the standard achievement tests such as the Wide Range Achievement Test or the Metropolitan Achievement Test. In this case, the research questions are directed to difference scores on the specific test before and after the administration of the programed instruction material. The discontinuous (before and after) nature of this procedure is a serious shortcoming because it does not allow a point to point analysis of the relationship between the program and the child's behavior. This method, like the programed instruction with "other" comparison, is recommended by the Joint Committee for the external validation of the material.

The careful reader of research is quick to note that the dependent variable in these studies is not programed instruction performance, but achievement test performance. Programed instruction performance is then inferred from the test performance.

In his text on evaluating programed instruction Jacobs, et al., (1966), mentions the Denver Study as the classic model for evaluation. This study, reported in toto by Jacobs, utilized both the programed instruction with "other" comparison and the programed instruction with achievement test types of evaluation. The questions asked in this study were:

1) Do classes taught by the program only, by a teacher only, and by a combination of a teacher plus the program differ in the outcomes of levels of achievement, attitudes toward programed instruction and interest in Spanish?

2) How are the input characteristics of initial achievement, academic aptitude, and attitude towards Spanish related to the outcomes of achievement in interest in Spanish in each instructional group? For example, do the brighter classes learn more than the slower ones in each group?

3) Are teacher's attitudes towards Spanish and various teaching methods related to the instructional methods used in the study?

A careful examination of these questions reveals that in no case is programed instruction performance the dependent variable. This study, the apparent classic in the evaluation of programed instruction, is in fact not an evaluation of the internal aspects of programs. Because it is an evaluation about programed instruction as it relates to various dependent variables such as achievement

test and attitude scale scores, no direct statement may be made regarding the behavior change on the program itself.

Also mentioned in the evaluation literature, but clearly not research, is a caution to the program user to check the credentials of the program author and the publisher. The Joint Committee advises all publishers to include with each program sold, complete developmental and utilization testing data. The advisement, in practice, is little heeded.

In summary, there are four main methods of evaluating programed instruction material. These are:

1) the checklist,
2) Bloom's Taxonomy of Educational Objectives,
3) programed instruction with "other" comparison,
4) programed instruction with achievement test evaluation.

It is clear from this review that programed instruction performance is typically not the dependent variable in the evaluation of programed instruction materials.

Free Operant Research in Education

In the history of phychology, the use of free operant techniques in the analysis of human behavior is relatively recent. It was only in 1949 that Fuller demonstrated experimental control over a vegetative mental retardate. Skinner's text, using knowledge acquired in the study of free operant behavior of animals to describe human behavior, appeared in 1953. In it, an empirical framework for the

experimental analysis of human behavior was presented. Sound experimental data were not forthcoming until Lindsley's classic study with chronic psychotics (1956). Skinner (1958), reporting on his research with programed instruction technology, an extension of free operant techniques with animals, excited much interest in the educational community. Bijou (1957, 1958) developed observation techniques for young children patterned closely after those used by Lindsley.

The marriage between the educator and free operant methods was not long in coming. Birnbrauer, Bijou, Wolf, and Kidder (1965) demonstrated the application of free operant techniques in a classroom situation using programed instruction as a curricular core. Zimmerman and Zimmerman (1962) also applied free operant techniques in a classroom with much less structure than Birnbrauer's classroom.

Ayllon and Azrin (1964) demonstrated the functional utility of token economies in shaping the behavior of patients in a mental hospital. Girardeau and Spradlin (1964) used the same type of token control with retardates at the Parsons State Home and Training School.

At that time, however, there was no systematic or standard method in human free operant research. Although a precise language was available for the description of animal behavior (Ferster and Skinner, 1957), its application to the human situation was confusing and left much to be desired. Research reports were presented in the literature with method and discussion sections so radically non-standard that scientific replication (Sidman, 1964) was virtually impossible.

O. R. Lindsley (1964) put forth a numerical-temporal descriptive language. Its purpose was to precisely describe behavior and those events related to behavior, either in number or in time. This was followed by a major strategy statement indicating that behavior change must be produced by teachers and parents in order to meet the existent need (Lindsley, 1968). Lindsley (1966) has coined the term precision teaching to describe the use of free operant methods by teachers. The details of precision teaching and the descriptive language are available elsewhere (Koenig, 1967; Caldwell, 1967; Haughton, 1967) and will not be treated at length here.

Although rate was the accepted datum unit for animal free operant research, researchers using human subjects felt little obligation to follow suit. Instead, many relied on the more standard educational datum units of absolute number and percent. In a study of the sensitivity of the various datum units to behavior change, Holzschuh and Dobbs (1966) demonstrated that rate was consistently more sensitive than other units examined. Subsequent research (Caldwell, 1966; Johnson, 1967b) has supported this finding.

Free operant techniques in general, and precision teaching in particular, have found wide acceptance in special education (Haring and Schiefelbusch, 1967). Operant techniques have been used almost exclusively with single organisms. Because special educators have long been tailoring curricular programs for individual children, the techniques seemed

ideally suited for that area of education concerned primarily with individual differences.

Koenig (1967) used precision teaching in a classroom setting with emotionally disturbed children to examine a wide range of academic and disruptive behaviors. Haughton (1966) demonstrated the functional utility of direct and continuous recording of behavior compared with an examination of achievement tests in predicting pupil performance. Johnson (1967c) demonstrated dramatically that achievement tests and pupil performance on similar material generated different performance rates when both pupil performance and achievement test performance were directly recorded. Johnson (1967a) found that teacher-planned rates (number of problems assigned by the teacher divided by the number of minutes allotted by the teacher for their solution) were, in part, determiners of subsequent pupil performance rate.

Johnson (1969) is currently engaged in the use of precision teaching to evaluate the Science Research Associates arithmetic series. This study, as yet unpublished, is the only reference known to this writer on the evaluation of any curriculum through the use of free operant techniques.

In summary, free operant techniques originally used exclusively in the study of animal behavior, have, in recent years, seen wide application to human performance. When used in classroom settings, the techniques may be collectively referred to as precision teaching (Lindsley, 1966). Although precision teaching has been applied to

a broad range of educational problems, only in one case has it been used in the analysis of curricular material.

Statement of Purpose

The purpose of this dissertation is to assess the usefulness of free operant technology (precision teaching) in the analysis of programed curricular materials.

Method

Subjects

Fifty-nine children, thirty-seven boys and twenty-two girls from two Alachua County, Florida, elementary schools, Stephen Foster Elementary and Duval Elementary, participated. The children were placed in grades three through six and were referred to the writer by their regular teachers. The sole referral criterion was that the child be two or more years behind in his reading performance. Children were not excluded because of low IQ test scores.

Teachers

Eleven teachers participated in this study. All were graduate students in the Department of Special Education at the University of Florida. Nine were Masters candidates, one an Ed.D. candidate, and one a Ph.D. candidate. All teachers received some form of graduate credit for their participation in the study.

Teaching Situation

The children in the study left their regular classes at a predetermined time to meet in a group with the

special teacher. The teaching situations varied from teacher to teacher, but in general can be described as poor. Lack of space necessitated some classes meeting in cafeterias, gyms, halls, and the like. In all cases, however, the school administrators in each school made every effort to insure the best teaching situation available in the specific circumstances.

Curricular Material

The Sullivan Reading Program (1964) was selected for use in this study. Consultation, initially, with educational specialists and, later, with teachers using the program, indicated that it enjoyed wide acceptance and was considered educationally sound.

In its entirety, the Sullivan Reading Program is not all programed instruction. Also included are storybooks, filmstrips, and end-of-book tests. These materials are not programed. They were not used in this study.

The programed instruction portion of the Sullivan Reading Program is presented in three series. Series I includes Programmed Reading Booklets 1-7 (Grade 1), Series II includes Programmed Reading Booklets 8-14 (Grade 2), and Series III includes Programmed Reading Booklets 15-21 (Grade 3). A sample of the program from Series I is presented in Appendix A.

Following approximately each fifty frames, a Diagnostic Test is scheduled. The Diagnostic Test, unlike

the programed text proper, has no answers in the answer column. The purpose of the Diagnostic Test is to give the teacher a check on the progress of the student by presenting a sample of the content presented in the preceding fifty frames. A sample Diagnostic Test is presented in Appendix B.

To determine the individual child's proper starting point in the Programmed Reader, a Placement Test is provided with the Sullivan Reading Program. The Placement Test is similar to the Diagnostic Test in that it has no answers. Each two pages in the Placement Test summarize the content in one Programmed Reader. The child begins in the booklet indicated by his first error in the Placement Test. A sample Placement Test is presented in Appendix C.

Experimental Design

The purpose of this study was to assess the usefulness of free operant technology, precision teaching, in the analysis of programed instruction material, specifically the material in the Programmed Reader of the Sullivan Reading Program. The experimental design had to meet two requirements:

1) it had to use the Programmed Reader exactly as indicated in the Teacher's Guide, and
2) it had to apply free operant methods to the recording and modification of Programmed Reader Performance.

The within-subject design, using each child as his own control, seemed an ideal choice. Following Sidman's (1964)

suggestion, the experiment was conducted in phases (the Before Phase, the During Phase and the After Phase) with replications across children and teachers. This particular design also allowed subsequent between-subject parametric analysis of many of the questions. This is schematically illustrated in FIGURE I.

In the first phase, the Before Phase, the Placement Test was administered and each child began in the Programmed Reader Booklet indicated by his Placement Test score. This phase lasted approximately eleven days and established the baselines needed to evaluate the effects of the curriculum and the teaching procedure. In the second phase, the During Phase, all experimental manipulations of independent variables took place. This phase lasted approximately eleven days. The last phase, the After Phase, was a replication of the Before Phase with no experimental manipulations in effect, and with the Placement Test being readministered at the conclusion of approximately eleven days.

Experimental design applied in the classroom

The teacher in the classroom intending to use the Programmed Reader from the Sullivan Reading Program must first determine in which Programmed Reader, (Booklet 1-15) each child is to begin. The Placement Test is provided for this purpose. If performance on the Placement Test is not equivalent to performance in the Programmed Reader, then the Placement Test is not performing its stated function with respect to placing the pupil in his correct beginning booklet.

FIGURE I

A schematic illustration of the within-subject design, with replications, used in this study.

	Before Phase	During Phase	After Phase
Class A	Child A1	Child A1	Child A1
	A2	A2	A2
	A3	A3	A3
	.	.	.
	.	.	.
	.	.	.
Class B	Child B1	Child B1	Child B1
	B2	B2	B2
	B3	B3	B3
	.	.	.
	.	.	.
	.	.	.

Etc.

The careful teacher will want to know if, indeed, the Placement Test score does approximate the level of performance of the booklet indicated. To investigate this question, the Placement Test was readministered on the last day of the After Phase. If the Placement Test was correctly indicating Programmed Reader performance level, the final administration of the test should have indicated the book in which the child was last performing.

Skinner points out (1954, 1958) that one of the central goals of programed instruction is to maximize correct responding and minimize incorrect responding. This is accomplished by carefully constructing each programed frame (antecedent event) in the program. The teacher using the Sullivan Reading Program naturally wishes to know whether the Programmed Reader does, in fact, differentiate correct responding from incorrect responding.

To examine this question, correct and incorrect response rates on the Programmed Reader in the Before Phase were analyzed. If the Programmed Reader differentiated correct from incorrect responses, then a difference should exist between the two response rates.

The most recent literature in programed instruction (NSSE, 1967) concerning the development of programs suggests "in-program" checks with frames similar to those in the regular program, but without the correct solutions available. The Programmed Reader of the Sullivan Reading Program has incorporated this principle in the Diagnostic Test. The Diagnostic Test, according to the Teacher's Guide to

Programmed Reading (1964), is not to be graded, but instead to be used as a guide to check on the quality of the students' work.

The careful teacher will want to know if performance on the Diagnostic Test is equivalent to performance on the Programmed Reader before she alters her supporting curriculum on the basis of this quality check.

To evaluate this problem, correct and incorrect performance rates, on both the Diagnostic Test and the Programmed Reader, collected in the Before Phase were analyzed. If the Diagnostic Test and the Programmed Reader are equivalent, there should be no difference between the performance rates on the two programs.

The teacher who has taught with the Programmed Readers for a period of time is able to assess the performance of her students. By examining each child's rate correct and rate incorrect as plotted on his six-cycle semi-log graph and recorded on his data sheets (Appendix D), she can decide on the best tactic to maximize his performance accuracy. That is, the teacher can plan how to increase the difference between correct response rate and incorrect response rate. One of the most common tactics to this end is the arrangement, the presentation or withdrawal, of a subsequent event following each response or series of responses made in the curricular material. This arrangement can be made with the intent of accelerating correct response rate by presenting the subsequent event; or decelerating incorrect response rate by withdrawing the subsequent event, or both.

The teacher who makes such an arrangement for each child will want to know precisely what effect it has on the child's behavior. In addition, she will want to know what effect the arrangement procedure, itself, has on the performance of her class as a whole.

To investigate this problem, the data gathered in the Before Phase, where no experimental conditions were in effect, and in the During Phase, where arrangements were in effect, were compared. If the subsequent event arranged to follow the Programmed Reader correct and/or incorrect response produced an effect on response rate, this would be seen as a difference between response rates in the Before Phase and response rates in the During Phase.

The classroom teacher is only too aware that often pupils are not motivated to perform on test items. It might interest her to know whether, on the Programmed Reader, a subsequent event presented to the child following each errorless Diagnostic Test will alter performance rate on the Diagnostic Test. To investigate this problem, correct and incorrect performance rates on the Diagnostic Test in the Before Phase and in the During Phase were analyzed. If the subsequent event following each errorless Diagnostic Test produced an effect on correct and/or incorrect response rate, this would be seen as a difference between response rates in the Before Phase and response rates in the During Phase.

The inquisitive teacher, when she presents a subsequent event following only the correct Programmed

Reader response will want to know whether the correct response rate accelerates or not, and exactly what happens to incorrect response rate in this condition. In order to answer this question, incorrect response rates on the Programmed Reader in the Before Phase and in the During Phase were compared. If the subsequent event presented following the correct Programmed Reader response had any effect on incorrect Programmed Reader response rate, this would be seen as a difference between incorrect response rates in the Before Phase and incorrect response rates in the During Phase.

Similarly, the teacher will want to know what the effect on correct response rate is when she withdraws a subsequent event following the incorrect Programmed Reader response. The same procedure was repeated for the correct response rates in the Before Phase and in the During Phase for this comparison. If the subsequent event withdrawn following an incorrect Programmed Reader response had any effect on correct Programmed Reader response rate, this would be seen as a difference between correct response rates in the Before Phase and correct response rates in the During Phase.

Since the purpose of arranging a subsequent event is to produce a lasting change in the magnitude of the difference between correct and incorrect response rates maintained by the natural consequences of superior achievement, the careful teacher will want to know precisely what the effect of the removal of an accelerating or decelerating

consequence has on subsequent performance. The problem was investigated by comparing correct and incorrect Programmed Reader response rates in the During and After Phases. If the removal of a consequating condition following Programmed Reader performance produced a subsequent change in Programmed Reader response rate, that change would be observed in a difference between performance rate in the During Phase and performance rate in the After Phase.

Statement of the Problem

The analyses indicated above may be condensed and summarized in the following eight questions:

1) Is the Placement Test score equivalent to indicated Programmed Reader book number?
2) Is correct Programmed Reader response rate different from incorrect Programmed Reader response rate?
3) Is performance rate on the Diagnostic Test equivalent to performance rate on the Programmed Reader?
4) What is the effect of the arrangement of a subsequent event following the Programmed Reader response on Programmed Reader response rate?
5) What is the effect of a subsequent event following each errorless Diagnostic Test on Diagnostic Test performance rate?
6) What is the effect of the arrangement of a subsequent event following each Programmed Reader

correct response on Programmed Reader incorrect response rate?

7) What is the effect of the arrangement of a subsequent event following a Programmed Reader incorrect response on Programmed Reader correct response rate?

8) What is the effect of the removal of the accelerating and decelerating consequences following the Programmed Reader response on Programmed Reader performance rate?

Chapter II

RESULTS

Placement Test Accuracy

The Sullivan Reading Program is organized so that a child may begin at any performance level from grades 1 through 4. The Programmed Reader booklet in which he begins is determined by his performance on the Placement Test. The child begins in the booklet indicated by the location of his first error in the Placement Test.

To determine the accuracy of the Placement Test, the scores on pre-Placement Tests administered in the Before Phase, the scores on post-Placement Tests administered at the conclusion of the After Phase, and the booklet numbers of the last Programmed Readers completed in the After Phase, were compared by means of a simple analysis of variance. The results, presented in TABLE I, suggest that a reliable difference existed among the three measures. A t test between the last Programmed Reader booklet completed and the post-Placement Test yielded a t of 12.66, $p < .01$. Strong support is lent to the conclusion that the Placement Test was not a reliable estimate of Programmed Reader performance.

TABLE I

A Simple Analysis of Variance for Differences Between Pre-Placement Test Scores, last Completed Programmed Reader Booklet Number, and Post-Placement Test Scores

Source of Variation	df	Variance Estimate	F
Between Groups	2	278.48	45.2*
Within Groups	56	6.27	
Total	58	15.55	

*P < .01

The Difference Between Correct and Incorrect Programmed Reader Performance Rates

In setting up guidelines for writing programs, Skinner (1954) pointed out that the well-constructed program should maximize correct responding while permitting a minimum number of error responses. The question of this difference was examined in the Programmed Reader by treating the correct and incorrect Programmed Reader response rates collected in the Before Phase with the Lindquist Type I Analysis of Variance (Lindquist, 1953). TABLE II indicates that correct and incorrect response rates on the Programmed Reader were well differentiated. TABLE III and FIGURE II display the direction and magnitude of this difference for the entire population and for one typical child, respectively.

The Difference Between Programmed Reader Performance Rates and Diagnostic Test Performance Rates

In the Programmed Reader booklets, a Diagnostic Test is scheduled approximately each 50 frames. The Diagnostic Test is intended to be a quick check on the accuracy of pupil performance. If this check is to be meaningful, the correct and incorrect Diagnostic Test performance rates must be approximately equal to the correct and incorrect performance on the Programmed Reader itself.

The extent of the difference was analyzed with the Lindquist Type VI Analysis of Variance. This analysis, presented in TABLE IV, considered class units, in addition to both correct and incorrect response rates on the Diagnostic Test and the Programmed Reader. It is clear that a reliable

TABLE II

A Lindquist Type I Analysis of Variance for Differences Between Correct and Incorrect Programmed Reader Response Rates

Source of Variation	df	Variance Estimate	F
Children (b)	58	5.91	
Classes (A)	10	17.62	5.07*
Error (b)	48	3.47	
Children (w)	57		15.30
Correct-Incorrect (B)	1	827.27	582.58*
A x B	10	1.00	.70
Error (w)	46	1.42	
Total	115	10.83	

correction factor = 1044.67

* $p < .01$

TABLE III

The Direction and Magnitude of Differences Between Correct and Incorrect Programmed Reader Response Rates

Child	Direction of Change	Magnitude of Change
Allen	+	3.20
Ballard	+	12.60
Carver	+	6.35
Hathway	+	5.15
Williams	+	9.70
Langston	+	6.35
Hines	+	3.50
Willford	+	2.90
Young	+	5.45
Godbolt	+	2.40
Nattiel	+	3.70
Ford	+	2.70
Brown, M.	+	13.75
Wright	+	6.95
Jones	+	6.95
Jeffcoat	+	4.50
Fogarty	+	6.85
Howell	+	14.83
Jackson	+	7.20
Wimms	+	5.75
Thomas	+	4.85
Klickly	+	4.55
Lesene	+	4.50
Webb	+	4.40
Morris, P.	+	4.06
Morris, B.	+	9.67
Johnson	+	4.35
Hardwic	+	4.15
Cray	+	5.71
Hayes	+	7.29
Camps	+	6.02
Kelly	+	5.90
Railey	+	1.90
Sperring	+	7.15
Taylor	+	3.50
Bruce	+	4.65
Hague	+	9.10
Howell, D.	+	4.90
Beals	+	4.80
Bishop	+	3.70
Somese	+	3.80
Lee	+	3.40

TABLE III Continued

Child	Direction of Change	Magnitude of Change
Pattison	+	4.70
Ross	+	5.90
Brown	+	4.13
James	+	5.68
Stewart	+	4.68
Walker	+	5.93
Berry	+	4.62
Haile	+	2.20
Alexander	+	2.55
Burke	+	2.30
Brown, K.	+	4.05
Davis	+	2.20
Smith, J.	+	2.05
Bass	+	2.95
Fogarty	+	2.90
Howard	+	5.90
Shaupe	+	3.48

FIGURE II

Correct and incorrect Programmed Reader response rates. (Before Phase)

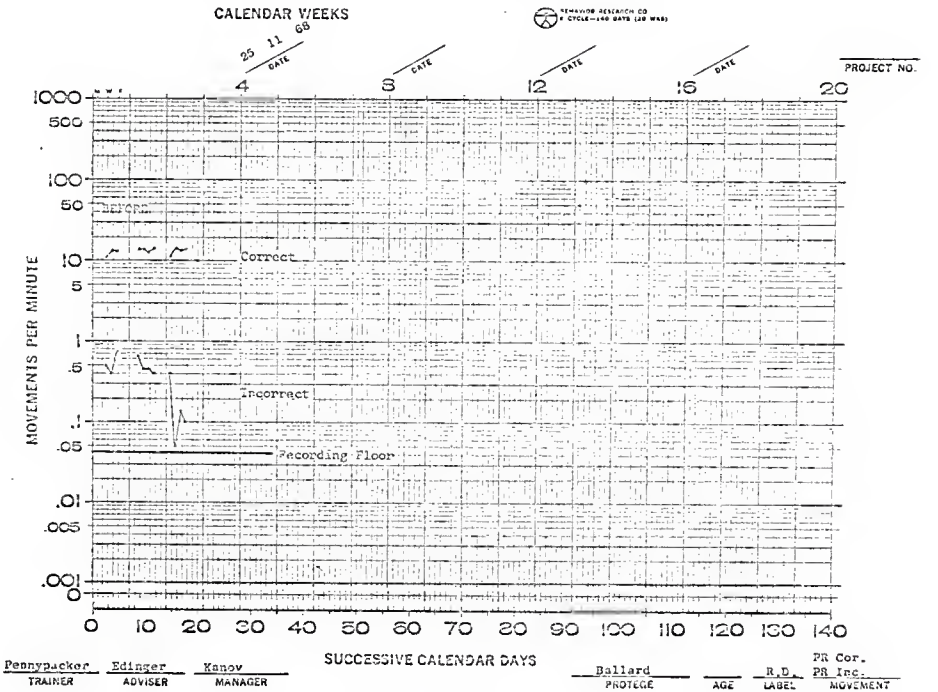


TABLE IV

A Lindquist Type VI Analysis of Variance for Differences Between Programmed Reader Response Rates and Diagnostic Test Response Rates

Source of Variation	df	Variance Estimate	F
Children (b)	58		
Classes (A)	10	19.58	4.91**
Error (b)	48	3.98	
Within	177	12.38	
Correct-Incorrect (B)	1	1546.23	376.55**
Programmed Reader-Diagnostic Test (C)	1	15.58	10.56**
B x C	1	8.15	4.50**
A x B	10	21.54	5.24*
A x C	10	2.65	1.80
A x B x C	10	2.56	1.41
Error (w)	144	2.46	
Error 1	48	4.10	
Error 2	48	1.47	
Error 3	48	1.80	
Total	235	10.97	
correction factor = 2549.35			

* $p < .05$
** $p < .01$

difference did exist between performance rates on the Diagnostic Test and on the Programmed Reader, with the latter having the higher rates. In addition, differences were observed between correct and incorrect response rates (a result consistant with TABLE II) and in performance rates among class units.

A graphic display of the means in the interaction terms revealed that: 1) the B x C interaction could be attributed to the differences observed between the mean incorrect response rate on the Diagnostic Test and the mean incorrect response rate on the Programmed Reader, and 2) the A x B interaction could be attributed to a pooling of four distinct class units on correct response rates for both the Diagnostic Test and Programmed Reader.

The Effects of Arranging a Subsequent Event Following Programmed Reader Responses

The precision teacher who wishes to change the rate of correct and/or incorrect responding often achieves this end by arranging a subsequent event (e.g., penny, star, M&M, etc.) to follow the desired response. This procedure of presenting or withdrawing subsequent events may be used to either accelerate or decelerate the response rate. The first possible procedure, presenting a subsequent event following correct Programmed Reader responses, while ignoring incorrect Programmed Reader responses, was examined by treating the correct Programmed Reader response rates collected in the Before and During Phases of the experiment with the Wilcoxon Signed Rank Test (Wilcoxon and Wilcox, 1964).

The result, presented in TABLE V, suggests that a reliable difference was present between the performance rates in the two phases. An examination of column "d" shows that most of the response rates were accelerated in the During Phase. It should be noted that the magnitude of each of the seven accelerations was far greater than the magnitude of each of the two decelerations. A graph of this acceleration is presented in FIGURE III.

The second possible procedure, withdrawing a subsequent event after incorrect Programmed Reader responses, while ignoring correct Programmed Reader responses, was also treated with the Wilcoxon Signed Rank Test. The result as presented in TABLE VI, indicates a reliable difference between the performance rates in the two phases. An examination of column "d" shows that the response rates here were decelerated in the During Phase. Once again, the magnitude of the changes was largest in the expected direction of the change, deceleration in this case. A graph of this deceleration is presented in FIGURE IV.

The third possible procedure, the combination of the first two arrangements, was also treated with the Wilcoxon statistic. TABLES VII and VIII present the results of the analyses. It should be noted the results of this combination of arrangements are strikingly similar to each of the arrangements alone for their respective responses. FIGURE V displays this simultaneous acceleration and deceleration.

TABLE V

A Wilcoxon Signed Rank Test for Differences Between Before Phase Correct Programmed Reader Response Rates and During Phase Correct Programmed Reader Response Rates

Child	Before Phase	During Phase	d	Rank of D	Rank of D with Less Frequent Sign
Brown	4.00	6.83	+2.83	4	
Stewart	4.91	7.97	+3.06	6	
James	5.54	7.16	+1.62	3	
Walker	5.67	8.92	+3.25	7	
Berry	4.98	7.82	+2.84	5	
Camps	6.34	10.56	+4.22	9	
Hayes	7.99	11.93	+3.94	8	
Pattison	4.54	4.45	- .09	1	1
Bishop	3.92	3.54	- .38	2	2
					T = 3*

*$p < .02$

FIGURE III

The effect of presenting a subsequent event following correct Programmed Reader responses on correct Programmed Reader response rate.

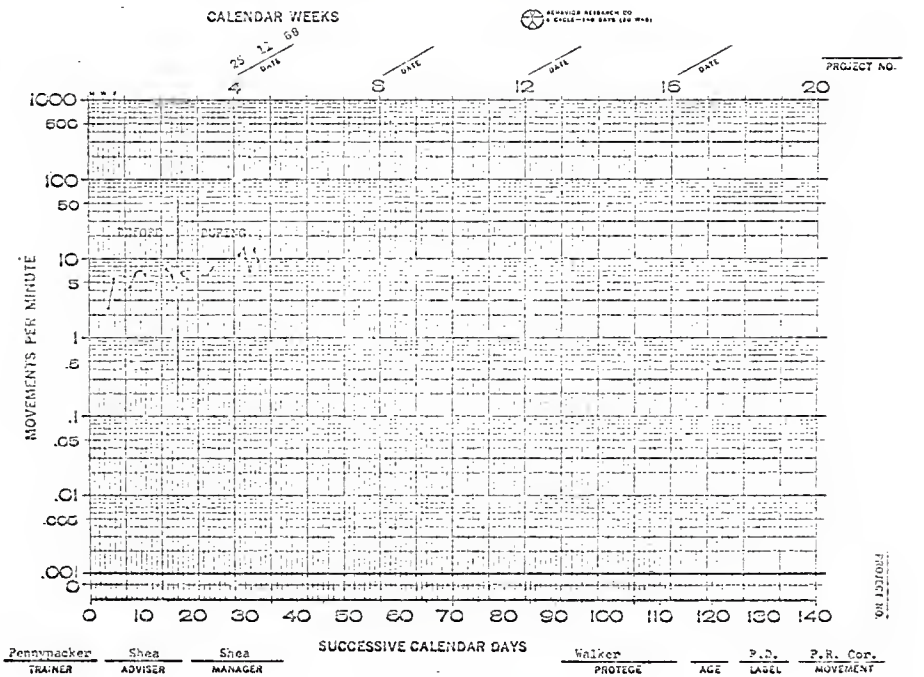


TABLE VI

A Wilcoxon Signed Rank Test for Differences Between Before Phase Incorrect Programmed Reader Response Rates and During Phase Incorrect Programmed Reader Response Rates

Child	Before Phase	During Phase	d	Rank of D	Rank of D with Less Frequent Sign
Willford	.75	.40	-.35	16	
Ballard	.39	.05	-.34	15	
Williams	.24	.08	-.16	10	
Brown	.29	.24	-.05	4	
Howell	.23	.46	+.23	13	13
Kelly	.54	.03	-.51	17	
Davis	.10	.12	+.02	1.5	1.5
Brown	.08	.02	-.06	5.5	
Burke	.22	.07	-.15	9	
Alexander	.09	.15	+.06	5.5	5.5
Haile	.36	.14	-.22	11.5	
Morris, B.	.42	.10	-.32	14	
Morris, P.	1.06	.20	-.86	18	
Jackson	21	.13	-.08	7	
Klickly	.25	.24	-.01	1	
Lesene	.42	.20	-.22	11.5	
Thomas	.69	.59	-.10	8	
Wimms	.09	.11	+.02	1.5	1.5
					T = 21.5*

*P < .005

FIGURE IV

The effect of withdrawing a Subsequent Event following incorrect Programmed Reader responses.

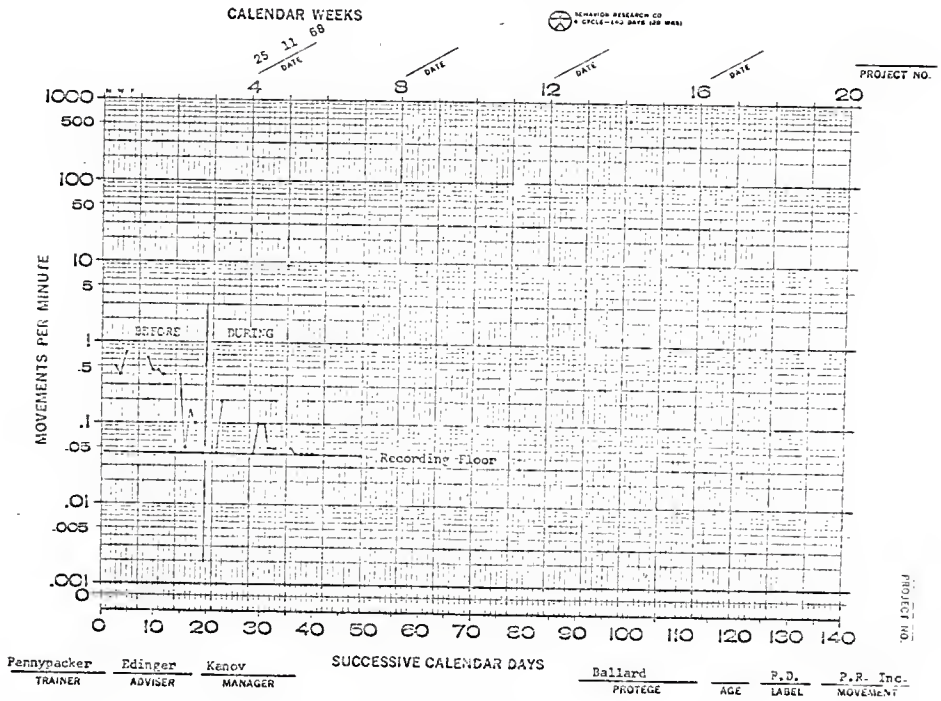


TABLE VII

A Wilcoxon Signed Rank Test for Differences Between Before Phase Correct Programmed Reader Response Rates and During Phase Correct Programmed Reader Response Rates

Child	Before Phase	During Phase	d	Rank of D	Rank of D with Less Frequent Sign
Shaupe	3.74	3.08	-.66	9	9
Smith, J.	3.01	2.31	-.70	10	10
Bass	3.45	5.94	+2.49	25	
Fogarty	3.20	5.23	+2.03	22	
Howard	6.24	4.47	-1.77	21	21
Ford	3.35	3.58	+.23	4	
Godbolt	3.00	3.36	+.36	7	
Hines	3.91	5.23	+1.32	19	
Nattiel	3.65	4.71	+1.06	16.5	
Young	5.25	5.87	+.62	8	
Allen	2.41	1.67	-.74	12	12
Carver	6.51	6.17	-.34	6	6
Hathway	5.70	6.73	+1.03	13.5	
Langston	6.52	7.55	+1.03	13.5	
Jones	6.78	7.49	+.71	11	
Wright	7.35	11.10	+3.75	30	
Jeffcoat	4.86	7.63	+2.27	29	
Fogarty	7.21	12.57	+5.36	31	
Beals	5.26	4.19	-1.07	18	18
Lee	3.78	3.97	+.19	3	
Ross	6.23	6.24	+.01	1	
Somese	4.21	6.86	+2.65	26	
Cray	6.77	4.11	-2.66	27	27
Hardwic	5.06	3.12	-1.06	16.5	
Johnson	6.12	3.39	-2.73	28	28
Webb	5.27	4.22	-1.05	15	15
Railey	2.48	2.43	-.05	2	2
Sperring	7.50	9.20	+1.70	20	
Taylor	4.05	6.31	+2.26	23	
Bruce	4.78	7.25	+2.74	24	
Hague	9.10	15.20	+6.10	32	
Howell	5.64	5.38	-.22	5	5
					T = 153*
					z = 2.07

*$p < .02$

TABLE VIII

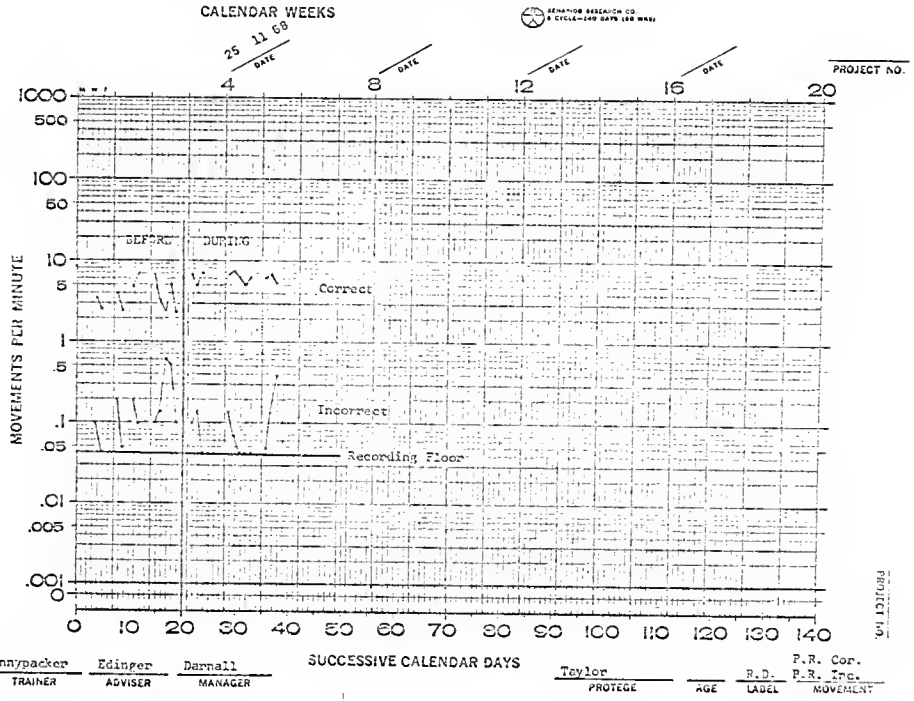
A Wilcoxon Signed Rank Test for Differences Between Before Phase Incorrect Programmed Reader Response Rates and During Phase Incorrect Programmed Reader Response Rates

Child	Before Phase	During Phase	d	Rank of D	Rank of D with Less Frequent Sign
Shaupe	.27	.11	-.16	14.5	
Smith	.08	.04	-.04	1.5	
Bass	.20	.11	-.09	5	
Fogarty	.18	.07	-.11	9.5	
Howard	.16	.28	+.12	11	11
Ford	.06	.42	+.36	27.5	27.5
Godbolt	.54	.33	-.21	19	
Hines	.34	.13	-.21	19	
Nattiel	.21	.01	-.30	24	
Young	.20	.10	-.10	7	
Allen	.45	.11	-.34	25	
Carver	.45	.08	-.37	29	
Hathway	.36	.21	-.15	13	
Langston	.28	.12	-.16	14.5	
James	.56	.16	+.04	1.5	1.5
Wright	.37	.16	-.21	19	
Jeffcoat	.25	.15	-.10	7	
Fogarty	.15	.15	-0		
Beal	.43	.21	-.22	21	
Lee	.30	.15	-.17	16	
Ross	.41	.16	-.25	22	
Somese	.16	.08	-.08	4	
Cray	.32	.18	-.14	12	
Hardwic	.50	.14	-.36	27.5	
Johnson	.56	.21	-.35	26	
Webb	.92	.20	-.72	31	
Railey	.44	.04	-.40	30	
Sperring	.40	.14	-.26	23	
Taylor	.19	.09	-.10	7	
Bruce	.12	.01	-.11	9.5	
Hague	.18	.00	-.18	17	
Howell	.09	.14	+.05	3	3
					T = 48*
					z = 4.01

*p < .00003

FIGURE V

The effects of simultaneously presenting and withdrawing subsequent events following correct and incorrect Programmed Reader responses.



The Effects of the Arrangement of a Subsequent Event Following Each Errorless Diagnostic Test

It has just been demonstrated that the presentation and withdrawal of a subsequent event following Programmed Reader performance reliably altered the rate of that performance. What, then, is the effect of presenting a subsequent event following each errorless Diagnostic Test? To answer this question, a Lindquist Type VI Analysis of Variance was performed on all Diagnostic Test response rates, correct and incorrect. The data were analyzed by phases, Before Phase and During Phase; with a subordinate analysis by class units. It can be seen in TABLE IX that, although the main effect for class units and the main effect for correct and incorrect response rates were significant, the Before and During Phase main effect was not significant. This result is clearly evident in the lack of uniformity in the direction and magnitude of changes presented in TABLE X.

The Effect of Presenting a Subsequent Event Following Correct Programmed Reader Responses on Incorrect Programmed Reader Response Rate

It was previously demonstrated in TABLE V that the presentation of a subsequent event following the correct Programmed Reader response accelerated that response. In that condition, the incorrect Programmed Reader response was ignored. To investigate the effect of the presented subsequent on the previously ignored incorrect response rate, a Wilcoxon Signed Rank Test was performed on the incorrect Programmed Reader response rates observed in the Before and

TABLE IX

A Lindquist Type VI Analysis of Variance for Differences Between Before Phase Diagnostic Test Response Rates and During Phase Diagnostic Test Response Rates

Source of Variation	df	SS	MS	F
Between	58	469.83		
Classes (A)	10	207.73	20.77	3.80*
Error (b)	48	262.10	5.46	
Within	177	2723.07	15.38	
Correct-Incorrect (b)	1	1885.68	1885.68	265.70*
Before-During (C)	1	4.03	4.03	3.77
A x B	1	26.99	26.99	39.96*
A x C	10	273.56	27.35	3.85*
B x C	10	57.49	5.74	5.37*
A x B x C	10	50.92	5.09	7.53*
Error (w)	144	424.37	2.94	
Error 1	48	340.64	7.09	
Error 2	48	51.30	1.06	
Error 3	48	32.42	.67	
Total 235		3192.91	13.58	
Correction Factor = 3255.15				

*P < .01

TABLE X

The Direction and Magnitude of Differences Between Before Phase Correct and Incorrect Programmed Reader Responses and During Phase Correct and Incorrect Programmed Reader Responses

Child	Correct		Incorrect	
	Direction of Change	Magnitude of Change	Direction of Change	Magnitude of Change
Allen	-	.40	-	.15
Ballard	-	4.00	-	1.00
Carver		00	-	.92
Hathway	-	3.00		00
Williams	+	1.00	-	.71
Langston	+	2.80	+	.23
Hines	+	5.40	-	.60
Willford	+	2.70	-	.72
Young	+	5.40	-	.30
Godbolt	+	.60	-	.84
Nattiel	+	3.00	-	.60
Ford	+	2.40	-	.45
Brown, M.	-	1.70	+	.11
Wright	+	1.00	-	.58
Jones	-	.70	-	.34
Jeffcoat	-	2.70	+	.32
Fogarty	+	2.00	-	.33
Howell		00	+	.35
Jackson	+	1.50	+	.50
Wimms	+	2.60	+	.80
Thomas	+	.90	-	.33
Kickly	+	2.20	-	.33
Lesene	+	.90	-	.52
Webb	-	.60	+	.36
Morris, P.	-	2.40	-	1.20
Morris, B.	+	1.20	-	.90
Johnson	+	4.20	+	.60
Hardwic	-	1.50	-	1.20
Cray	+	.90	+	.30
Hayes	+	3.00	+	.39
Camps	+	7.30	-	.09
Kelly	+	1.00	-	1.50
Railey	+	4.30	-	.80
Sperring	+	3.40	+	.15
Taylor	+	3.10	-	.01
Bruce	+	1.20	+	.44
Hague	+	2.00	-	.22
Howell, D.	+	1.40	-	.57
Beals	+	.30	+	.06
Bishop	+	1.80	-	.42
Somese	-	2.30	+	.27
Lee	+	.90	+	.54

TABLE X Continued

Child	Correct		Incorrect	
	Direction of Change	Magnitude of Change	Direction of Change	Magnitude of Change
Pattison	+	1.30	+	.54
Ross		00	-	.49
Brown	+	4.50	+	.63
James		00		00
Stewart	+	1.00	+	.25
Walker	-	.20	-	1.79
Berry	-	.80	-	1.05
Haile	-	3.50		00
Alexander	-	.40	-	.33
Burke		00	-	.50
Brown, K.	+	.40	-	.94
Davis		00	-	3.50
Smith, J.	+	.20	-	.15
Bass	+	.21		00
Fogarty	-	.30	+	.34
Howard	-	2.60	-	3.45
Shaupe	-	2.00	-	.88

During Phases. TABLE XI shows that incorrect Programmed Reader response rates were reliably decclerated when an arrangement was made to follow correct Programmed Reader responses. An examination of column "d" reveals that in only two cases was an accclcration observed, and these cases showed the lcast changes in magnitude. FIGURE VI displays this deceleration as obscrved in one typical child's performancc.

The Effect of Withdrawing a Subsequent Event Following Incorrect Programmed Reader Rcsponses on Correct Programmed Reader Responsc Rate

TABLE VI demonstrated that withdrawal of a subsequent cvent fo.lowing the incorrect Programmed Reader responsc decelerated incorrect response rate. In that condition, the correct Programmed Reader response was ignored. To investigate the effect of the prescnted subsequent event cn the previously ignored correct response rate, a Wilcoxon Signed Rank Tcst was performed on the correct Prcgrammed Reader response rates observed in the Bcfore and During Phases. TABLE XII shows that correct Programmed Reader responses were not rcliably affected by the withdrawal of a subsequcnt event following thc incorrect Programmed Reader responsc. An examination of column "d" in TABLE XII reveals that, although the direction of changes was predominatcly accelerating, the magnitude of changes observed in the four cascs of deccleration was sufficiently large to counteract the dirccctional predomenance of the data and yield a non-significant result.

TABLE XI

A Wilcoxon Signed Rank Test for Differences Between Before Phase Incorrect Programmed Reader Response Rates and During Phase Incorrect Programmed Reader Response Rates

Child	Before Phase	During Phase	d	Rank of D	Rank with Less Frequent Sign
Brown	.38	.28	-.10	3.5	
Stewart	.20	.07	-.13	5	
James	.12	.16	+.04	2	2
Walker	.39	.20	-.19	6	
Berry	.51	.25	-.26	8	
Camps	.20	.10	-.10	3.5	
Hayes	.29	.08	-.21	7	
Bishop	.18	.19	+.01	1	1
Pattison	.06	.06	0		
					T = 3*

*$p < .05$

FIGURE VI

The effect of presenting a subsequent event following incorrect Programmed Reader responses on incorrect Programmed Reader response rate.

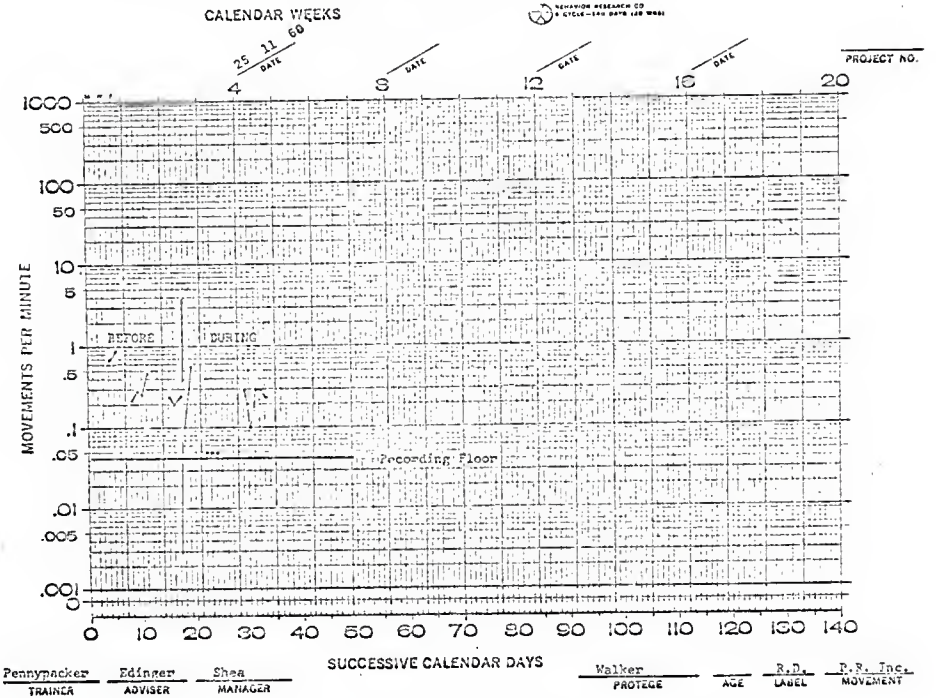


TABLE XII

A Wilcoxon Signed Rank Test for Differences Between Before Phase Correct Programmed Reader Response Rates and During Phase Correct Programmed Reader Response Rates

Child	Before Phase	During Phase	d	Rank of D	Rank with Less Frequent Sign
Willford	3.77	4.32	+.55	10	
Ballard	13.41	12.79	-.62	11	11
Williams	9.82	9.87	+.05	1	
Brown	14.05	17.76	+3.71	7.5	
Howell	15.15	15.50	+.35	6	
Kelly	6.22	4.43	-1.79	14	14
Davis	2.26	3.20	+.84	12	
Brown	3.98	5.63	+1.65	13	
Burke	2.49	2.78	+.29	5	
Alexander	2.65	3.15	+.50	9	
Haile	2.82	2.91	+.09	3	
Morris, B.	9.89	7.50	-2.39	16	16
Morris, P.	5.51	5.66	+.15	4	
Jackson	6.86	10.48	+3.62	17	
Klickly	4.81	4.44	-.37	7.5	7.5
Lesene	4.97	6.95	+1.98	15	
Thomas	5.90	5.98	+.08	2	
Wimms	6.83	11.07	+4.24	18	
					T = 48.5*

*not significant

The Effects of Terminating Arrangements on Subsequent Programmed Reader Performance

Normally it is not practical to maintain a classroom under continual synthetic consequation. The effects of presenting subsequent events following Programmed Reader responses have been previously examined. What is the effect of removing the arrangement entirely?

In the first condition, where the subsequent event was presented following the correct Programmed Reader response, the data collected in the During and After Phases were treated with the Wilcoxon Signed Rank Test. TABLE XIII indicates that the already accelerating correct Programmed Reader response rates continued accelerating. An examination of column "d" reveals that in no case was a deceleration observed. This effect is shown for a typical child in FIGURE VII.

In the second condition, where the subsequent event was withdrawn following the incorrect Programmed Reader response, the incorrect response rates for these children that were collected during the During and After Phases were treated with the Wilcoxon statistic. No change in incorrect response rate is observed in TABLE XIV. An examination of column "d" reveals no consistancy in either the direction or magnitude of the changes. FIGURE VIII demonstrates this maintenence of response rate.

The third condition, where both of the above arrangements were in effect, was also treated with by applying Wilcoxon Signed Rank Test to the performance rates

TABLE XIII

A Wilcoxon Signed Rank Test for Differences Between During Phase Correct Programmed Reader Response Rates and After Phase Correct Programmed Reader Response Rates

Child	During Phase	After Phase	d	Rank of D	Rank with Less Frequent Sign
Brown	6.83	11.17	+4.34		
Stewart	7.97	9.97	+2.02		
James	7.16	10.22	+3.06		
Walker	8.92	12.10	+3.18		
Berry	7.82	8.68	+.86		
Camps	10.56	11.87	+1.31		
Hayes	11.93	13.65	+1.72		
Bishop	3.54	7.22	+3.68		
Pattison	4.45	8.23	+3.78		
					T = 0*

*p < .01

FIGURE VII

The effect of terminating an arrangement made to correct Programmed Reader responses on subsequent correct Programmed Reader response rate.

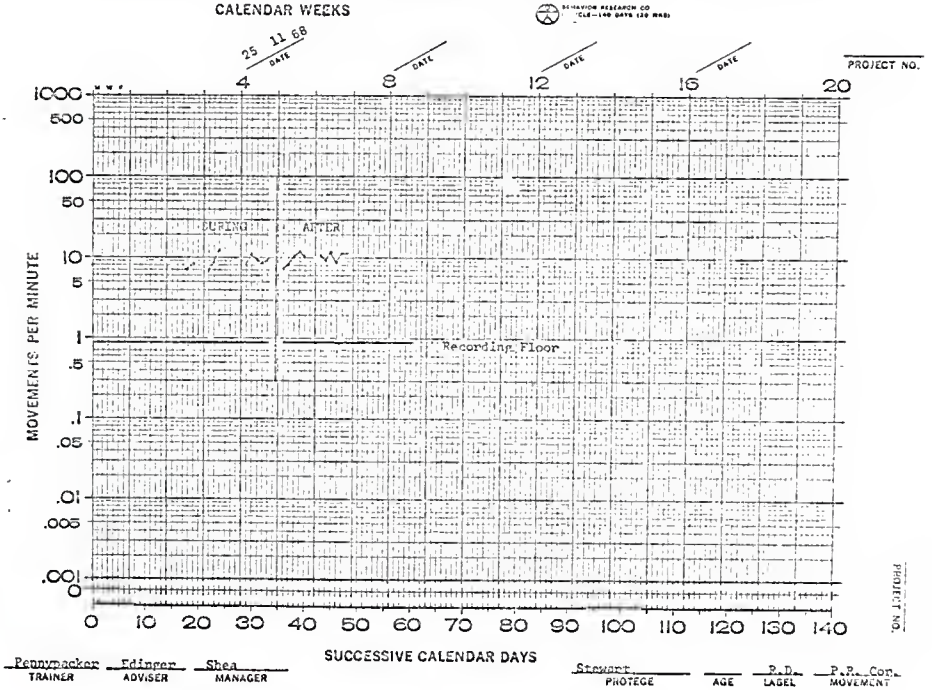


TABLE XIV

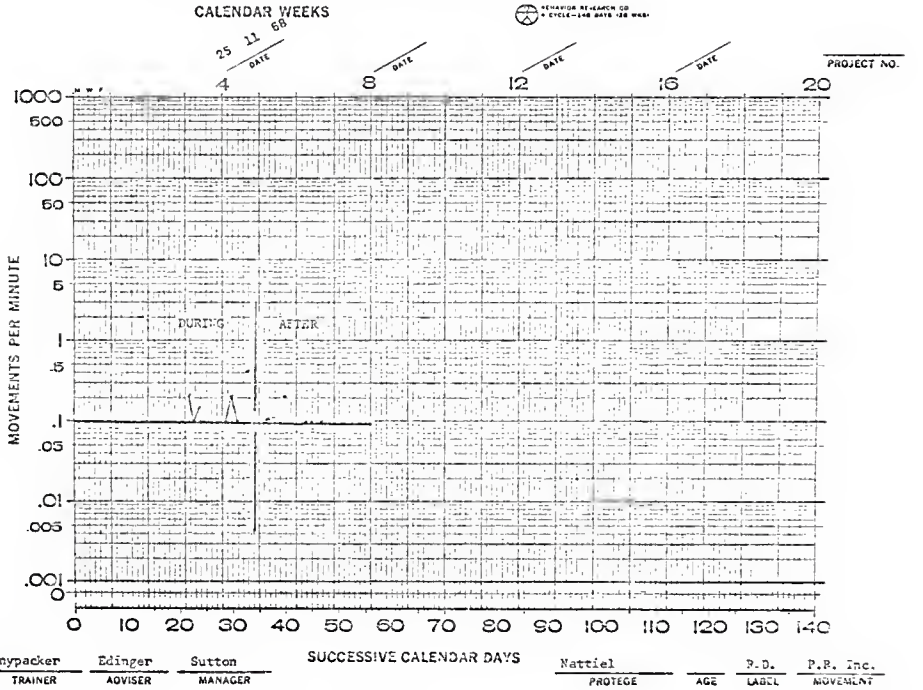
A Wilcoxon Signed Rank Test for Differences Between During Phase Incorrect Programmed Reader Response Rates and After Phase Incorrect Programmed Reader Response Rates

Child	During Phase	After Phase	d	Rank of D	Rank with Less Frequent Sign
Willford	.40	.17	-.23	14	14
Ballard	.05	.03	-.02	3	3
Williams	.08	.18	+.10	10	
Brown	.24	1.46	+1.22	18	
Howell	.46	.47	+.01	1.5	
Kelly	.03	.07	+.04	4	
Davis	.12	.07	-.05	5	5
Brown	.02	.01	-.01	1.5	1.5
Burke	.07	.15	+.08	9	
Alexander	.15	.02	-.13	13	13
Haile	.14	.21	+.07	7	
Morris, B.	.10	.21	+.11	11	
Morris, P.	.20	.61	+.41	17	
Jackson	.13	.45	+.32	15.5	
Klickly	.24	.17	-.07	7	7
Lesene	.20	.52	+.32	15.5	
Thomas	.59	.66	+.07	7	
Wimms	.11	.23	+.12	12	
					T = 43.5*

*not significant

FIGURE VIII

The effect of terminating an arrangement made to incorrect Programmed Reader responses on subsequent incorrect Programmed Reader response rate.



for both correct and incorrect Programmed Reader responses in the During and After Phases. The results of these analyses are presented in TABLES XV and XVI. Note the striking similarity of these results to those observed in TABLES XIII and XIV. In both cases an acceleration was observed for correct response rates and no effect was observed for incorrect responses. FIGURE IX demonstrates this simultaneous acceleration and maintenence.

Summary of Results

The results of this study may be summarized as follows:

1) the Placement Test is not an accurate index of Programmed Reader performance
2) correct and incorrect Programmed Reader response rates are reliably different
3) the presentation of a subsequent event following the correct Programmed Reader response reliably accelerates that response
4) the withdrawal of a subsequent event following the incorrect Programmed Reader response reliably decelerates that response
5) the presentation of a subsequent event following each errorless Diagnostic Test does not reliably effect Diagnostic Test performance rate
6) the presentation of a subsequent event following the correct Programmed Reader

TABLE XV

A Wilcoxon Signed Rank Test for Differences Between During Phase Correct Programmed Reader Response Rates and After Phase Correct Programmed Reader Response Rates

Child	During Phase	After Phase	d	Rank of D	Rank with Less Frequent Sign
Shaupe	3.08	1.92	-1.16	10	10
Smith, J.	2.31	3.46	+1.15	7	
Bass	5.94	5.74	-.20	2	2
Fogarty	5.23	4.09	-1.14	8	8
Howard	4.47	6.65	+2.23	21	
Ford	3.58	.74	-2.84	26	26
Godbolt	3.36	4.61	+1.25	12	
Hines	5.23	6.15	+.92	7	
Nattiel	4.71	7.37	+2.66	23	
Young	5.87	10.10	+4.32	30	
Allen	1.67	7.32	+5.65	32	
Carver	6.17	7.47	+1.30	14	
Hathway	6.37	8.57	+1.84	19	
Langston	7.55	10.82	+3.27	28	
Jones	7.49	6.73	-.76	6	6
Wright	11.10	8.95	-2.15	20	20
Jeffcoat	7.63	2.52	-5.11	31	31
Fogarty	12.57	15.76	+3.19	27	
Beals	4.19	5.97	+1.78	17.50	
Lee	3.97	5.30	+1.33	15	
Ross	6.24	7.45	+1.21	11	
Somese	6.86	8.64	+1.78	17.5	
Cray	4.11	4.35	+.24	3	
Hardwic	3.12	5.92	+2.80	25	
Johnson	3.39	2.84	-.55	5	5
Webb	4.22	5.84	+1.26	13	
Railey	2.43	2.76	+.33	4	
Sperring	9.20	9.21	+.01	1	
Taylor	6.31	4.85	-1.46	16	16
Bruce	7.25	9.99	+2.74	24	
Hague	15.20	11.34	+3.86	29	
Howell	5.38	7.83	+2.45	22	
				T = 124*	

*P < .02

TABLE XVI

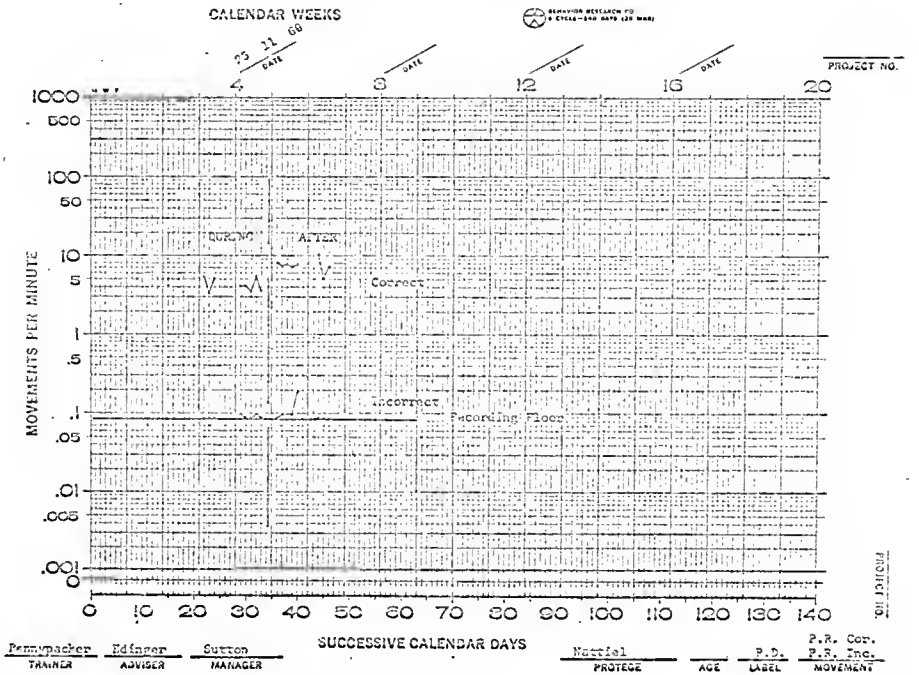
A Wilcoxon Signed Rank Test for Differences Between During Phase Incorrect Programmed Reader Response Rates and After Phase Incorrect Programmed Reader Response Rates

Child	During Phase	After Phase	d	Rank of D	Rank with Less Frequent Sign
Shaupe	.11	.07	-.02	6.5	
Smith, J.	.04	.10	+.06	16.0	
Bass	.11	.21	+.10	20.5	
Fogarty	.07	.04	-.03	10.5	10.5
Howard	.28	.06	-.22	28	28.0
Ford	.42	.40	-.02	6.5	6.5
Godbolt	.33	.15	-.18	26	26.0
Hines	.13	.19	+.06	16	
Nattiel	.21	.01	-.20	27	27.0
Young	.10	.02	-.08	19	19.0
Allen	.11	.06	-.05	13.5	13.5
Carver	.08	.24	+.16	22.50	
Hathway	.21	.05	-.16	22.5	22.5
Langston	.12	.05	-.07	18.0	18.0
Jones	.60	1.45	+.85	32	
Wright	.16	.33	+.17	24.5	
Jeffcoat	.15	.17	+.02	6.50	
Fogarty	.15	.14	-.01	2.0	2.0
Beals	.21	.24	+.03	10.5	
Lee	.13	.14	+.01	2.0	
Ross	.16	.17	+.01	2.0	
Somese	.08	.13	+.05	13.5	
Cray	.18	.50	+.32	31	
Hardwic	.14	.24	+.10	20.5	
Johnson	.21	.27	+.06	5.0	
Webb	.20	.50	+.30	29.0	
Railey	.04	.02	-.02	6.5	6.5
Sperring	.14	.63	+.49	31	
Taylor	.09	.11	+.02	6.5	
Bruce	.01	.03	+.02	6.5	
Hague	.18	.01	-.17	24.5	24.5
Howell	.04	0	-.04	12	12.0
					T = 216.5*

*not significant

FIGURE IX

The effect of simultaneously terminating arrangements made to correct and incorrect Programmed Reader responses on correct and incorrect Programmed Reader response rates.



response reliably decelerates the ignored incorrect response rate

7) the withdrawal of a subsequent event following the incorreet Programmed Reader response does not reliably affect the ignored eorreet response rate

8) the termination of an arrangement made following eorreet Programmed Reader responses is associated with a subsequent aceeleration of correet Programmed Reader response rate

9) the removal of an arrangement made following incorreet Programmed Reader responses is assoeiated with a maintenee of ineorreet Programmed Reader response rate.

Chapter III

DISCUSSION

The issues with which this dissertation is concerned may be pooled into three major areas:

1) the demonstrated utility of free operant techniques in the measurement and analysis of programed curricular material
2) the effects of reinforcement on programed instruction response rate
3) the concurrent nature of correct and incorrect programed instruction performance.

The Utility of Free Operant Techniques

As was pointed out in the Review of Related Research concerning the evaluation of programed instruction performance, there is a remarkable lack of precision and standardization in the analysis and evaluation of programed instruction material. Indeed, in most cases, performance on the programed material itself is rarely used as the dependent variable in the reported studies.

The important difference in using free operant techniques in the analysis of programed instruction performance is primarily in the use of direct, continuous recording of all pupil performance.

Markle (1967), Mager (1961) and Trow (1963) emphasize the importance of using measurable behavioral objectives in the evaluation of any performance. In the usual situation, however, the response required in the curricular material and the response required in the evaluation are not the same response. It is obvious that the researcher cannot evaluate directly one response by measuring another. He must be able to record directly the responses being observed if he is to make meaningful statements about those responses. In this study, all responses in the Programmed Reader and in the Diagnostic Test were continuously and directly recorded. This recording procedure allows statements to be made regarding the compatibility of those two portions of the Sullivan Reading Program.

The direct continuous recording also allows a precise statement concerning the relationship between correct and incorrect performance rates. Research reports (Holland, 1965) traditionally report only percent correct and percent incorrect, forcing the two measures to be complementary and pooling them over time. This results in a tremendous loss of sensitivity to behavior change (Lindsley, 1967; Holzschuh and Dobbs, 1966; Koenig, 1967). The continuous, direct, daily performance rates give both the teacher and the student immediate knowledge of performance in all phases of the programed instruction performance.

In this study, the direct continuous recording of programed instruction performance rate demonstrated that:

1) performance rates on the Diagnostic Test were reliably different from performance rates on the Programmed Reader
2) correct Programmed Reader response rates were reliably different from incorrect Programmed Reader response rates.

In addition, a traditional pretest-posttest evaluation of the Placement Test indicated that Placement Test performance was not a reliable index of where the child performs in the Programmed Reader.

The Effects of Reinforcement on Programmed Reader Performance

The question of reinforcement in programed instruction has traditionally been discussed from a theoretical point of view. Bypassing the theory, which is not relevant for this discussion, and examining the experimental methodology found in relevant reports in the literature, it becomes again apparent that only rarely is the dependent variable in such studies pupil performance (Johnson, 1969). Generally, a criterion is administered, either one made especially for the purpose, or one of the standardized tests commercially available. In no case did the writer observe a direct continuous measure of pupil performance rate in the within-subject design type of experiment. The between-subject design further reduces the likelihood of those reported studies finding change, should there be one, thus increasing the probability of Beta error. The within-subject design has no such sensitivity drawbacks. Studies

utilizing thewithin-subjeet design with free operant recording teehniques have been able to show not only that a change occurred with respect to some experimental variable (i.e., the presentation of a subsequent event following a response), but they were able to show the precise daily fluctuations of response rate associated with the experimental conditions in effeet (Johnson, 1967a, 1967b; Koenig, 1967; Haughton, 1967).

Using the above type of design, this study observed:

1) the presentation of an experimentally selected subsequent event following the correet Programmed Reader response alone aeeelerated eorrect Programmed Reader response rate
2) the withdrawal of a subsequent event following each incorrect Programmed Reader response alone deeelerated incorreet Programmed Reader response rate
3) simultaneous presentation and withdrawal eonditions both aeeelerated eorrect Programmed Reader response rate and deeelerated incorrect Programmed Reader response rate
4) the presentation of a subsequent event following the eorreet Programmed Reader response deeelerated ineorrect Programmed Reader response rate
5) the withdrawal of a subsequent event following

the incorrect Programmed Reader response did not reliably affect correct Programmed Reader response rate.

This study also examined the effect on subsequent pupil performance of terminating the reinforcement condition. The results are most interesting:

1) the removal of an acceleration consequence following correct Programmed Reader responses accelerated subsequent correct Programmed Reader response rate
2) the removal of a deceleration consequence following the incorrect Programmed Reader response did not reliably affect subsequent incorrect Programmed Reader response rate.

This result is remarkably similar to an effect experimentally known as "behavioral contrast" (Reynolds, 1961). There are, however, certain dissimilarities present. In behavioral contrast, the effect is noted following the acquisition of a discrimination. In the present situation, no experimental discrimination was trained. However, response differentiation between correct and incorrect Programmed Reader responses was established. Whether, in the present situation, this response differentiation provides the conditions for the necessary stimulus discrimination to occur is not clear. Proper schedule manipulations to replicate the phenomena within each subject were not performed. It can only be noted that this is a behavioral-contrast-like phenomena and deserves a thorough systematic investigation.

Such an effect has been noted by other researchers. Lindsley (1969), Koenig (1969), and O'Brien, Azrin, and Henson (1969) report observing the acceleration. Lindsley calls the phenomena "after effect," which, on the basis of present experimental evidence, is probably a more accurate descriptive term than is "behavioral contrast."

For the teacher, this means that a subsequent event may be arranged for use as a tool to investigate a rate change, and need not necessarily be used to maintain that change. In fact, it appears that any particular arrangement may serve to limit operant strengthening if left in effect too long. More research will be needed to determine the guidelines for terminating accelerating arrangements at the optimal time for maximal maintenance of the movement.

The Concurrent Nature of Correct and Incorrect Responses

Nowhere in the literature did this researcher encounter an experimental discussion of the behavioral relationship between correct and incorrect response rate in programed instruction performance. Glaser (1965) and Holland (1965) both provide extended disucssions on error responding and error "rate," in terms which are actually not rates but absolute numbers or percents. Markel (1967), writing on the empirical aspects of program evaluation, presents a similar analysis.

This study reports not only the effects of arranged subsequent events for correct Programmed Reader responses and for incorrect Programmed Reader responses,

but it reports the effects of an arranged subsequent event for correct Programmed Reader responses on incorrect Programmed Reader response rate and the effects of an arranged subsequent event for incorrect Programmed Reader responses on correct Programmed Reader response rate.

The changes observed indicate that correct Programmed Reader responses and incorrect Programmed Reader responses function as concurrent operants (Catania, 1966). Ferster and Skinner (1957) define concurrent operants as "two or more responses, of different topography at least with respect to locus, capable of being executed with little mutual interference at the same time or in rapid alternation, under the control of separate programming devices." Educationally, this means that correct and incorrect responses are not complementary movements with respect to their contingencies. This further means that measures forcing complementarity (e.g., percent and absolute number) are not only insensitive to behavior change, but inappropriate for precise and accurate statements concerning correct and incorrect responses.

The great majority of research available on the nature of concurrent operants has been done with non-human vertebrates, chiefly the monkey, pigeon, and rat. One central experimental problem in studying the exact nature of concurrent schedules of reinforcement is the establishment of the independence of the concurrent operants in question, whether they are compatiable or incompatible. Procedures

to insure this independence are introduced primarily to avoid concurrent superstition effects (Catania, 1966, Ferster and Skinner, 1957). Correct and incorrect concurrent responses, even though they are technically incompatable, viz, they can't occur at the same place at the same time, are not independent, as shown by the data presented in Tables XI and XII. Specifically, the consequation of the correct response results in a simultaneous deceleration of incorrect response rate, but the deceleration of an incorrect response has no noticeable effect on correct response rate.

This study employed daily plotting of correct and incorrect response rates. This allowed only a coarse grain analysis of the concurrent operants and therefore no local interactions (variations in performance rate as a function of switching from one response to the other) could be observed. The only statement that can be made concerning correct and incorrect responses in this study is that they appear to be concurrent operants. Recordings of individual responses will be necessary to uncover further information concerning the exact behavior of the operants with respect to each other for various schedules of reinforcement.

Chapter IV

SUMMARY

There are apparently no published reports of the experimental analysis or evaluation of curricular materials in which pupil performance rate, directly and continuously recorded, was used as a dependent variable. The present study applied free operant methods to the analysis of the performance of 59 reading disabled children on the Programmed Reader of the Sullivan Reading Program. A within-subject design allowed an experimental analysis of each individual child's performance. In addition, parametric and non-parametric statistical analyses were performed on the grouped data.

The extreme sensitivity of the direct and continuous recording of pupil performance rate as a dependent variable in the analysis of programed materials was demonstrated. Further, the efficiency of various contingency arrangements was examined. In all conditions, the presentation and/or withdrawal of a subsequent event produced an observable change in performance rate.

The results of the experimental procedures used in the study were discussed in the light of their strong similarity to results observed with non-human subjects. In particular, the concurrent nature of correct and incorrect

responses was discussed, and the need for further research to uncover local interactions for various contingency arrangements was pointed out. The study also noted a post-reinforcement condition (after effect) similar to the behavioral contrast seen experimentally with animals.

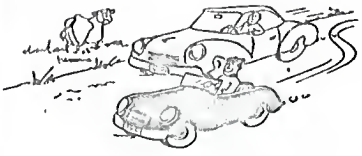
APPENDICES

APPENDIX A

A Sample of the Programmed Reader
from Series I of the
Sullivan Reading Program

passing

faster



The red car is pass_____ the big car.

The red car is f___ster than the big car.

black

skirt

Jack and Jill are dressed up to visit Sam and Ann. Jill has on a red wig and black glasses.

Jack has an a mask with < red / black whiskers.

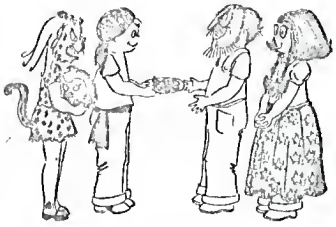
Jill's < shirt / skirt has stars on it.

no

Jack and his sister have a present to give to Sam and his sister.

This is the present.

Is it a banana? yes / no



Jack and Jill are with Sam and Ann. When Jack and Jill rang the bell, Ann let them in.

Jill

Which girl has an glasses? Jill / Ann

yes

Did Ann get the present? yes / no

Ann thanked Jack and Jill. Then Sam passed a dish of mints. Jack had seven mints, Jill had six, and Sam had ten.

Jack's

Jill is Sam's / Jack's sister.

yes

Are Jack and Jill visiting Sam and Ann? yes / no

jar

I am thinking of a thing that is glass and has jam in it.

It is a car. / jar.

letter

I am thinking of a thing that has a stamp and printing on it.

It is a ladder. / letter.

hand

I am thinking of the part of my arm that has fingers on it.

I am thinking of my ___and.

wings

The things I am thinking of are part of a bird. A bird can flap them. It has to flap them to fly.

I am thinking of ___ings.

APPENDIX B

A Sample Diagnostic Test from the Programmed Reader

TEST 6

1




a j__r a c__r a st__r an __rm

2

Sam went to the p__rk and sat in the gr__ss. The grass left a m__rk on his pants.

A man passed by and fed p__rt of a cracker to the birds.

Sam let the birds sit on his ___rm.

Are Sam's arms part of him? yes / no

APPENDIX C

A Sample of the Placement Test
of the
Sullivan Reading Program

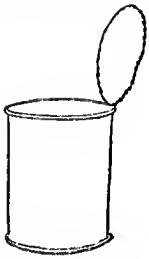
Sample Page

Am I an ant? yes / no

I am a hat. / cat.

Am I fat? yes / no

I am a fat ___at.



This is a man. / pan. / con.

it is a tin c___n.

TEST 1

This is Sam. This is Ann.
Sam and Ann can sing.

Is Ann singing? yes / na

Is Sam singing? yes / na

Is Sam sitting? yes / no.

Sam has a hat / mat an.

Sam has a fan in his hat. / hand.

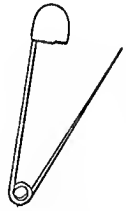
That is a p__n in Ann's h__nd.

TEST 1

1

hat
mat
cat

2



pan
pin
pig

3

can
fan
tan

4

dish
ship
maps

5

an __nt

a f__sh

1

6

a __an

a h__nd

TEST 2

bat
bag
pig

rat
mat
cat

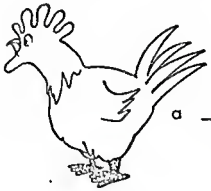
kitchen
kitten
mitten

trip
rip
drip

a __ing

a dr__ss

l__ps



a __icken

APPENDIX D

One Complete Precision Teaching Project for one Response

PROJECT NAMES: Pennypacker (TRAINER) Edinger (ADVISER) Geiger (MANAGER) Johnson (PROTEGE) SRP inc (MOVEMENT) (TARGET)

PROCEDURE REPORT

Behavior Research Co, Box 3351 Kansas City, Kansas 66103

USE NO 2 LEAD PENCIL

DO NOT MARK IN SHADED AREAS

MOVEMENT CYCLE: 1st 2ND 3RD 4TH | SELECTED BY:

FORM: SULLIVAN READ. PROG. INCORRECT RESPONSE | MADE BY:

RECORD

DAILY RECORDING PLAN: 1st 2ND 3RD 4TH | SELECTED BY

TO TIME BY | EACH TIMING SEEN BY:

TO COUNT BY: | EACH COUNTING SEEN BY

TO GRAPH BY | EACH GRAPHING SEEN BY

EACH RECORD STARTS

TO COUNT FOR A: NO. of MINUTES EACH DAY (Middle) | EITHER OR BOTH WHEN FIRST COME | TO: NO. of MOVEMENTS EACH DAY (Middle)

TO IGNORE NO. of VALID MINUTES EACH DAY (Middle) | TO IGNORE NO. of MOVEMENTS EACH DAY (Middle)

PROGRAM

PROGRAM: 2ND 3RD 4TH | SELECTED BY:

COMPONENT TO PROGRAM: ANTECEDENT EVENT | PROGRAMMED BY:

PROGRAM of NO. of EVENTS PER ... WHICH RUNS FOR A ... NO. of

TO START EACH SEPARATE EVENT BY: OR PRIOR: | AND TO STOP BY: OR

ANTECEDENT EVENT: 2ND 3RD 4TH | SELECTED BY:

ITEM: SULLIVAN READING PROGRAM FRAME

TO PRESENT: OR WITHDRAW: | TO OR FROM:

BY:

MIDDLE NO. OF MINUTES IN EACH ANTECEDENT EVENT | BOTH | MIDDLE NO. OF ITEMS IN EACH ANTECEDENT EVENT

ARRANGE

ARRANGEMENT: 2ND 3RD 4TH | SELECTED BY

COMPONENT TO ARRANGE: | ARRANGED BY:

ARRANGEMENT of NO. of | EACH RATIO of NO. of MOVEMENTS EARNING EACH SE

PROTEGE TO WAIT: NO. of (Middle)

BEFORE GETTING EACH EARNED SUBSEQUENT EVENT

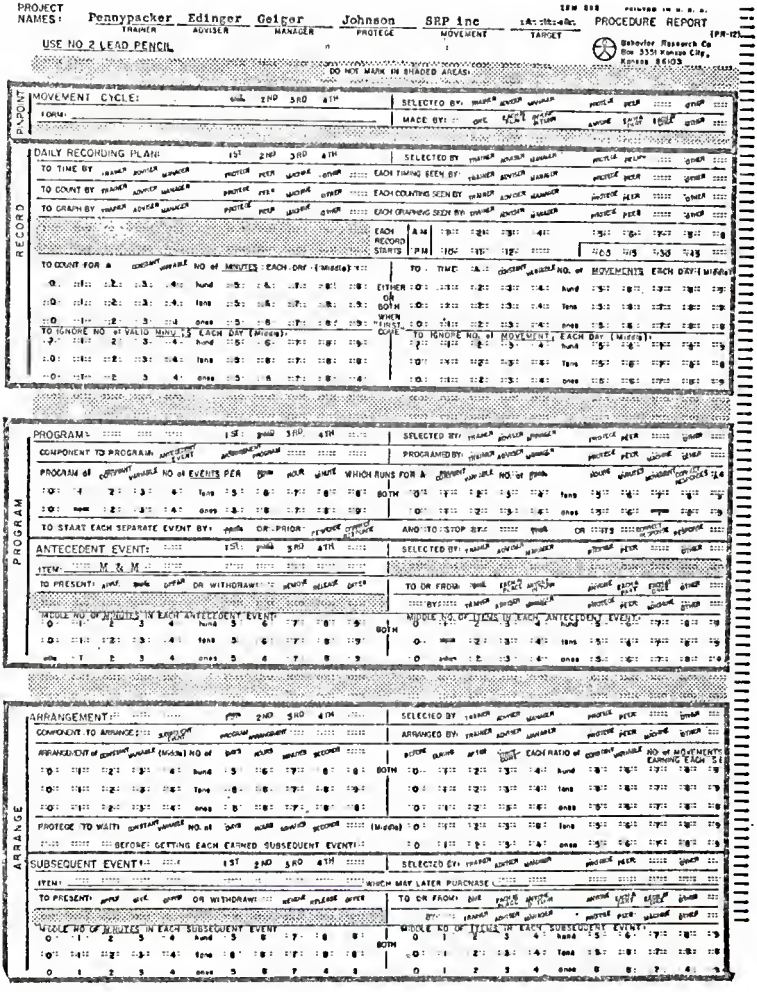
SUBSEQUENT EVENT: 2ND 3RD 4TH | SELECTED BY:

ITEM: M & M | WHICH MAY LATER PURCHASE

TO PRESENT: OR WITHDRAW: | TO OR FROM:

BY:

MIDDLE NO. OF MINUTES IN EACH SUBSEQUENT EVENT | BOTH | MIDDLE NO. OF ITEMS IN EACH SUBSEQUENT EVENT



PROJECT NAMES: Pennypacker (TRAINER) Edinger (ADVISER) Geiger (MANAGER) Johnson (PROTEGE) SRP Inc (MOVEMENT) [illegible] (TARGET)

PROCEDURE REPORT (PR-125)

USE NO 2 LEAD PENCIL

Behavior Research Co Box 3356 Kansas City, Kansas 66103

DO NOT MARK IN SHADED AREAS

POINT

MOVEMENT CYCLE: 1ST 2ND 3RD 4TH — SELECTED BY: TRAINER ADVISER MANAGER PROTEGE PEER [illegible] OTHER

FORM: — MADE BY: ONE EACH OTHER BOTH ANYONE EITHER OTHER

RECORD

DAILY RECORDING PLAN: 1ST 2ND 3RD 4TH — SELECTED BY: TRAINER ADVISER MANAGER PROTEGE PEER [illegible] OTHER

TO TIME BY: TRAINER ADVISER MANAGER PROTEGE PEER MACHINE OTHER — EACH TIMING SEEN BY: TRAINER ADVISER MANAGER PROTEGE PEER [illegible] OTHER

TO COUNT BY: TRAINER ADVISER MANAGER PROTEGE PEER MACHINE OTHER — EACH COUNTING SEEN BY: TRAINER ADVISER MANAGER PROTEGE PEER [illegible] OTHER

TO GRAPH BY: TRAINER ADVISER MANAGER PROTEGE PEER MACHINE OTHER — EACH GRAPHING SEEN BY: TRAINER ADVISER MANAGER PROTEGE PEER [illegible] OTHER

EACH RECORD STARTS: A M 12 1 2 3 4 — P M 12 1 2 3 4 — 4:05 5:15 5:30 7:45

TO COUNT FOR A CONSTANT VARIABLE NO. of MINUTES EACH DAY (Middle): 0 1 2 3 4 hund; 0 1 2 3 4 tens; 0 1 2 3 4 ones

TO TIME: ALL CONSTANT VARIABLE NO. of MOVEMENTS EACH DAY (Middle): EITHER OR BOTH WHEN FIRST OCCS: 0 1 2 3 4 hund; 0 1 2 3 4 tens; 0 1 2 3 4 ones

TO IGNORE NO. of VALID MINUTES EACH DAY (Middle): 0 1 2 3 4 hund; 0 1 2 3 4 tens; 0 1 2 3 4 ones

TO IGNORE NO. of MOVEMENTS EACH DAY (Middle): 0 1 2 3 4 hund; 0 1 2 3 4 tens; 0 1 2 3 4 ones

PROGRAM

PROGRAM: 1ST 2ND 3RD 4TH — SELECTED BY: TRAINER ADVISER MANAGER PROTEGE PEER [illegible] OTHER

COMPONENT TO PROGRAM: ANTECEDENT EVENT / PERFORMANCE PROGRAM — PROGRAMED BY: TRAINER ADVISER MANAGER PROTEGE PEER MACHINE OTHER

PROGRAM of CONSTANT VARIABLE NO. of EVENTS PER: DAY HOUR MINUTE — WHICH RUNS FOR A CONSTANT VARIABLE NO. of: DAYS HOURS MINUTES SECONDS CONSECUTIVE SESSIONS TO 0 1 2 3 4 hund; 0 1 2 3 4 tens; 0 1 2 3 4 ones — BOTH

TO START EACH SEPARATE EVENT BY: WAITS OR PRIOR PERFORMANCE OCCURRENCE — AND TO STOP BY: [illegible] WAITS OR [illegible] PERFORMANCE OCCURRENCE

ANTECEDENT EVENT: 1ST 2ND 3RD 4TH — SELECTED BY: TRAINER ADVISER MANAGER

ITEM: M & M

TO PRESENT: ANY SOME DIFFER OR WITHDRAW: REMOVE RELEASE DIFFER — TO OR FROM: [illegible] EACH ANY ONE ANYONE EACH ONE OTHER — BY: TRAINER ADVISER MANAGER PROTEGE PEER MACHINE OTHER

MIDDLE NO. of MINUTES IN EACH ANTECEDENT EVENT: 0 1 2 3 4 hund; 5 6 7 8 9; 0 1 2 3 4 tens; 5 6 7 8 9; 0 1 2 3 4 ones; 5 6 7 8 9 — BOTH

MIDDLE NO. of ITEMS IN EACH ANTECEDENT EVENT: 0 1 2 3 4 hund; 5 6 7 8 9; 0 1 2 3 4 tens; 5 6 7 8 9; 0 1 2 3 4 ones; 5 6 7 8 9 — BOTH

ARRANGE

ARRANGEMENT: 1ST 2ND 3RD 4TH — SELECTED BY: TRAINER ADVISER MANAGER PROTEGE PEER MACHINE OTHER

COMPONENT TO ARRANGE: ANTECEDENT EVENT / PROGRAM — ARRANGED BY: TRAINER ADVISER MANAGER PROTEGE PEER MACHINE OTHER

ARRANGEMENT of CONSTANT VARIABLE (Middle) NO. of DAYS HOURS MINUTES SECONDS: 0 1 2 3 4 hund; 5 6 7 8 9; 0 1 2 3 4 tens; 5 6 7 8 9; 0 1 2 3 4 ones; 5 6 7 8 9 — BOTH — BEFORE DURING AFTER CONSTANT EACH RATIO of CONSTANT VARIABLE NO. of MOVEMENTS EARNING EACH SE: 0 1 2 3 4 hund; 5 6 7 8 9; 0 1 2 3 4 tens; 5 6 7 8 9; 0 1 2 3 4 ones; 5 6 7 8 9 — BOTH

PROTEGE TO WAIT CONSTANT VARIABLE NO. of DAYS HOURS MINUTES SECONDS (Middle): 0 1 2 3 4 hund; 5 6 7 8 9; 0 1 2 3 4 tens; 5 6 7 8 9; 0 1 2 3 4 ones; 5 6 7 8 9 — BEFORE GETTING EACH EARNED SUBSEQUENT EVENT

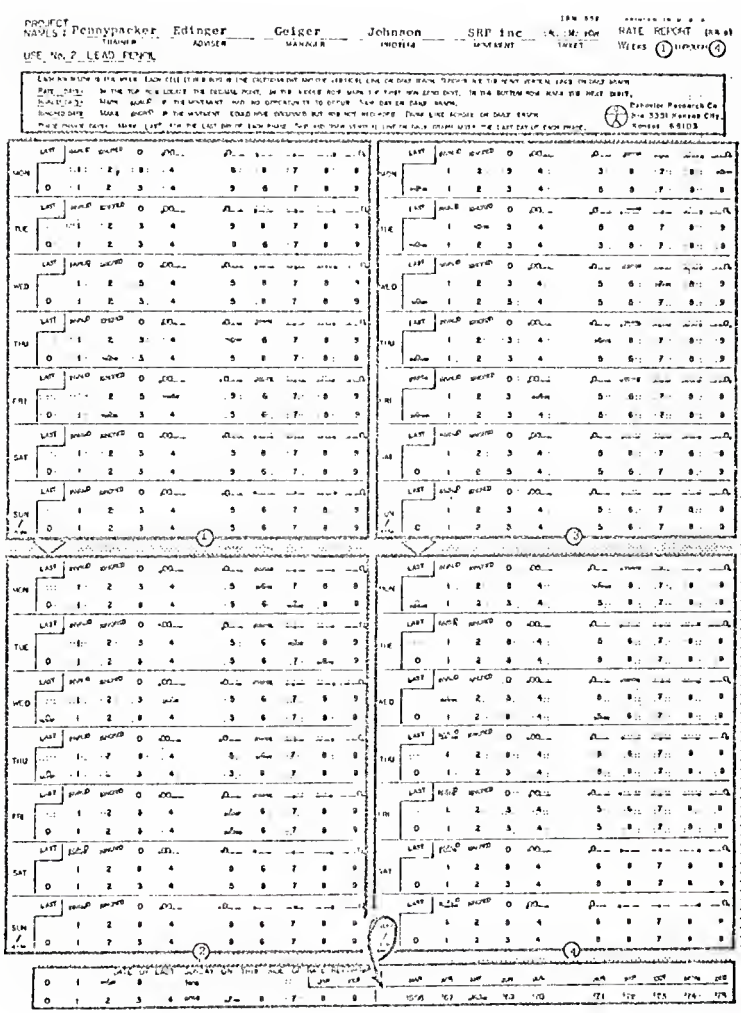
SUBSEQUENT EVENT: 1ST 2ND 3RD 4TH — SELECTED BY: TRAINER ADVISER MANAGER

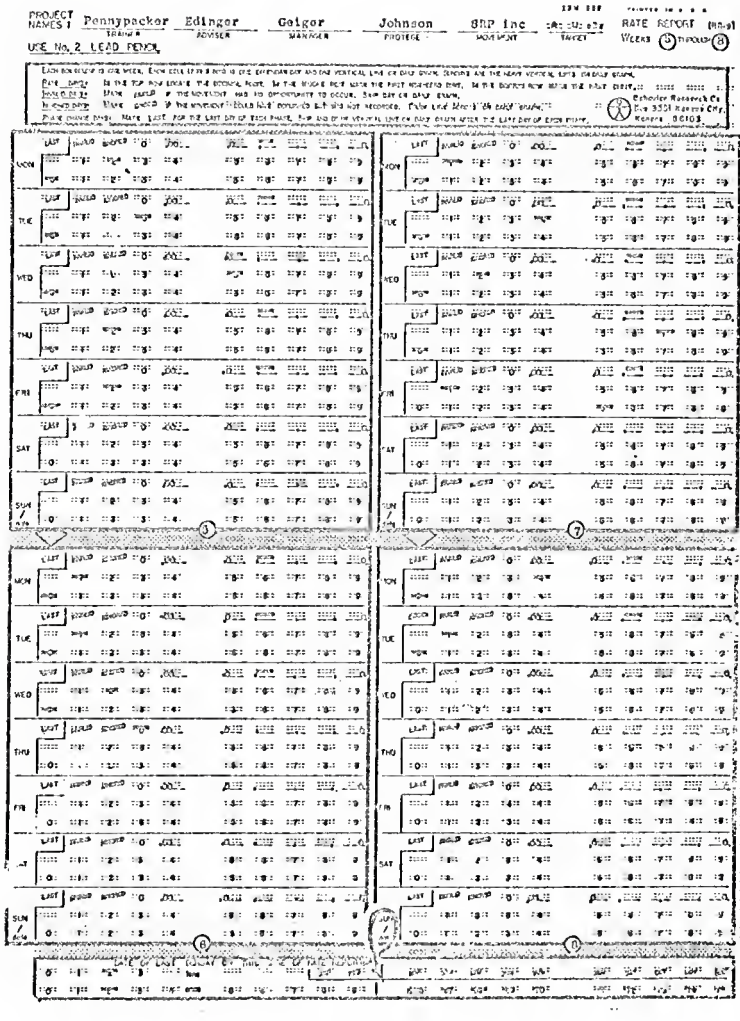
ITEM: — WHICH MAY LATER PURCHASE

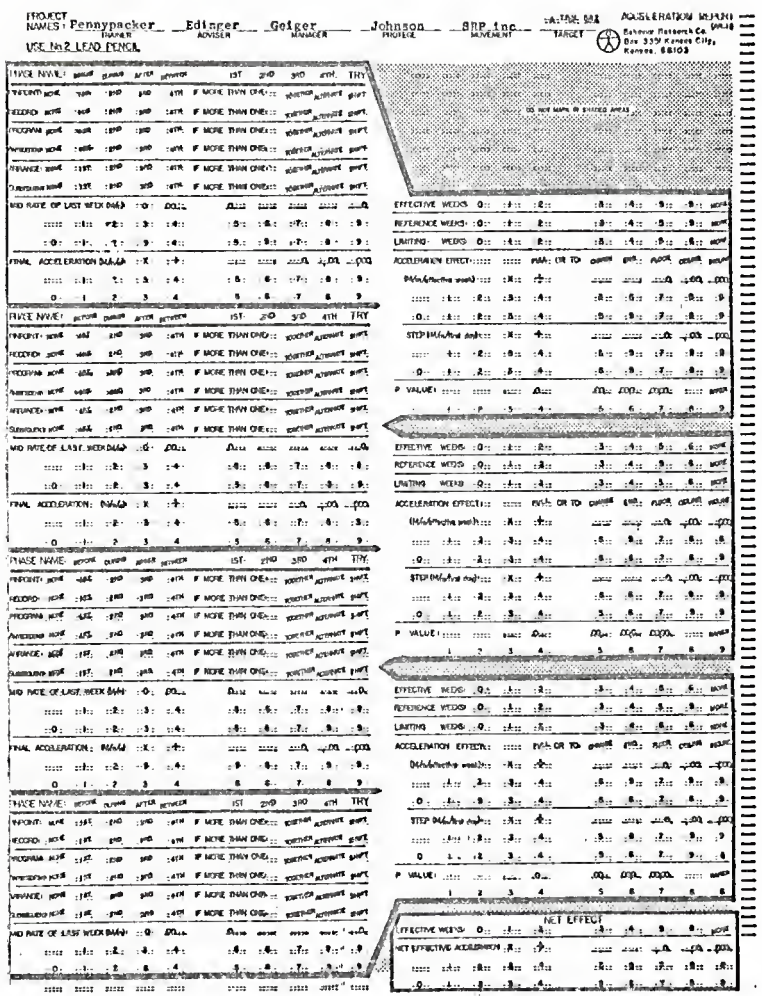
TO PRESENT: APPLY GIVE OFFER OR WITHDRAW: REMOVE RELEASE OFFER — TO OR FROM: ONE EACH ANY ONE ANYONE EACH ONE OTHER — BY: TRAINER ADVISER MANAGER PROTEGE PEER MACHINE OTHER

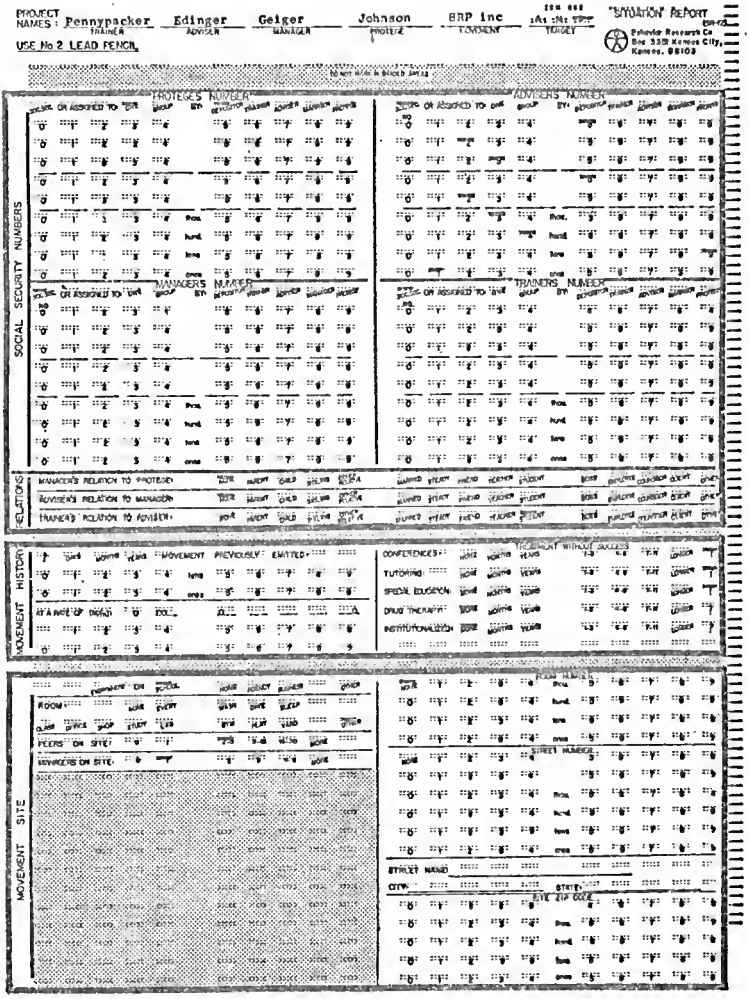
MIDDLE NO. of MINUTES IN EACH SUBSEQUENT EVENT: 0 1 2 3 4 hund; 5 6 7 8 9; 0 1 2 3 4 tens; 5 6 7 8 9; 0 1 2 3 4 ones; 5 6 7 8 9 — BOTH

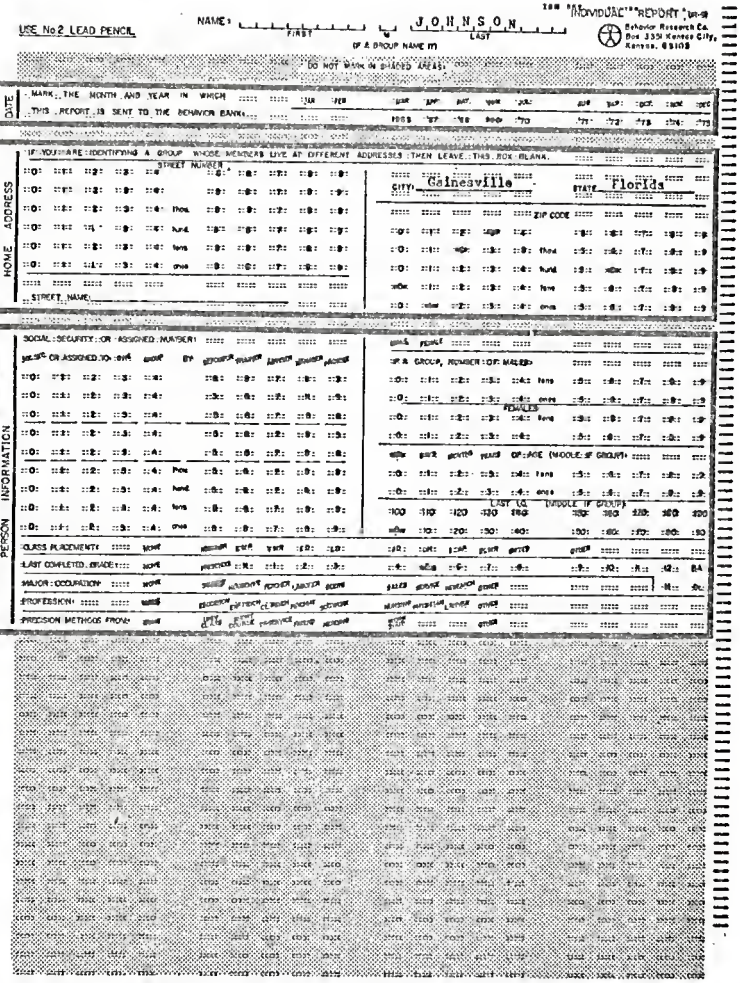
MIDDLE NO. of ITEMS IN EACH SUBSEQUENT EVENT: 0 1 2 3 4 hund; 5 6 7 8 9; 0 1 2 3 4 tens; 5 6 7 8 9; 0 1 2 3 4 ones; 5 6 7 8 9 — BOTH

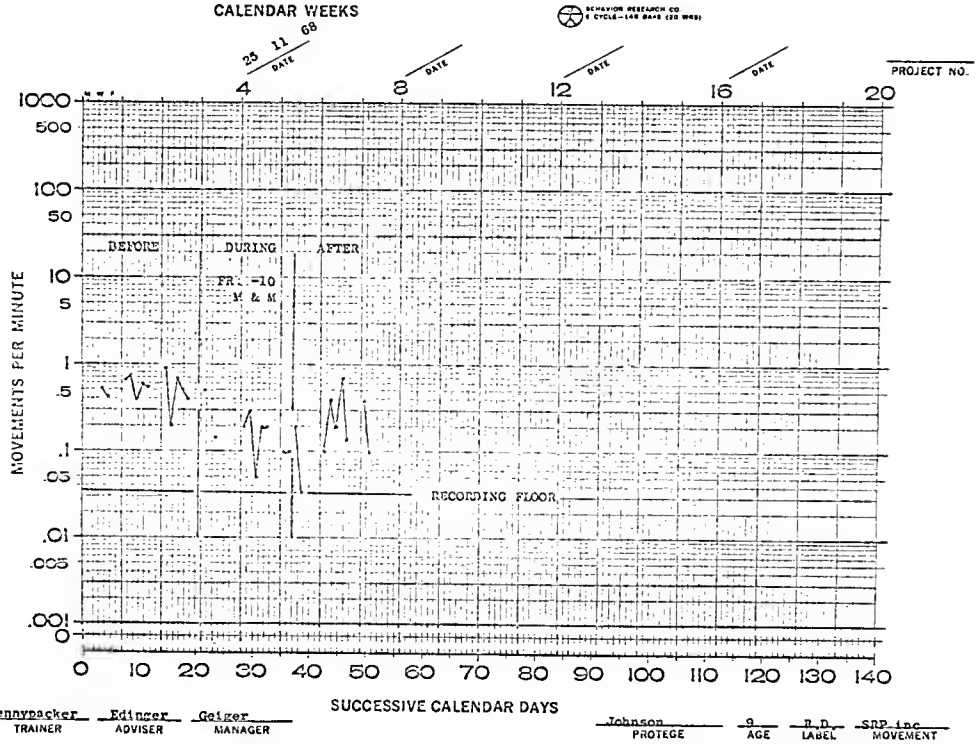

PROJECT NAMES: Pennypacker Edinger Geiger Johnson SRP Inc
TRAINER ADVISER MANAGER PHOTOG MEMBERS
USE NO. 2 LEAD PENCIL
RATE REPORT
WEEK 1 2 3 4
Palomino Research Co. Box 5331 Kansas City, Kansas 66103
MON TUE WED THU FRI SAT SUN
LAST WORKED BOOKED O


PROJECT NAME'S
Pennypacker
Edinger
Geiger
Johnson
BRP Inc
TRAINER
ADVISER
MANAGER
PROTEGE
MOVEMENT
TARGET
RATE REPORT
WEEKS
USE No. 2 LEAD PENCIL
MON
TUE
WED
THU
FRI
SAT
SUN


PROJECT NAMES: Pennypacker Edinger Geiger Johnson SRP Inc.
TRAINER ADVISER MANAGER PROTEGE MOVEMENT TARGET
ACCELERATION MEMO
Behavior Research Co. Box 329 Kansas City, Kansas, 66103
USE No 2 LEAD PENCIL
PHASE NAME
BEFORE DURING AFTER BETWEEN
1ST 2ND 3RD 4TH TRY
PRESENT
RECORD
PROGRAM
ANTICIPATION
ARRANGE
CIRCULATING
MID RATE OF LAST WEEK (M/M)
FINAL ACCELERATION: (M/M/M)
IF MORE THAN ONE
TOGETHER
ALTERNATE
SHIFT
EFFECTIVE WEEKS
REFERENCE WEEKS
LIMITING WEEKS
ACCELERATION EFFECT
P(M/M/effective week)
STEP (M/M/wk)
P VALUE
NET EFFECT
NET EFFECTIVE ACCELERATION
DO NOT MARK IN SHADED AREAS


PROJECT NAMES: Pennypacker Edinger Geiger Johnson BRP Inc
TRAINER ADVISER MANAGER PROTEGE TOMORROW TODAY
USE No 2 LEAD PENCIL
"SITUATION REPORT"
Palmdale Research Co
Box 3338 Kansas City, Kansas, 88108
DO NOT WRITE IN SHADED AREAS
SOCIAL SECURITY NUMBERS
PROTEGE'S NUMBER
ADVISER'S NUMBER
MANAGER'S NUMBER
TRAINER'S NUMBER
RELATIONS
MANAGER'S RELATION TO PROTEGE
ADVISER'S RELATION TO MANAGER
TRAINER'S RELATION TO ADVISER
MOVEMENT HISTORY
CONFERENCES
TUTORING
SPECIAL EDUCATION
DRUG THERAPY
INSTITUTIONALIZED
MOVEMENT SITE
ROOM NUMBER
STREET NUMBER
STREET NAME
CITY
STATE
ZIP CODE


IBM "INDIVIDUAL" REPORT
USE No 2 LEAD PENCIL
NAME: FIRST J O H N S O N LAST
OF A GROUP NAME IN
Behavior Research Co.
Box 3351 Kansas City,
Kansas, 66103
DO NOT MARK IN SHADED AREAS
DATE
MARK THE MONTH AND YEAR IN WHICH THIS REPORT IS SENT TO THE BEHAVIOR BANK
HOME ADDRESS
IF YOU ARE IDENTIFYING A GROUP WHOSE MEMBERS LIVE AT DIFFERENT ADDRESSES THEN LEAVE THIS BOX BLANK.
STREET NUMBER
STREET NAME
CITY: Gainesville
STATE: Florida
ZIP CODE
PERSON INFORMATION
SOCIAL SECURITY OR ASSIGNED NUMBER
SEX
MALE
FEMALE
OR A GROUP NUMBER OF MALES
FEMALES
DATE OF BIRTH
YEAR OF AGE
(MIDDLE IF GROUP)
LAST (L)
CLASS PLACEMENT
LAST COMPLETED GRADE
MAJOR OCCUPATION
PROFESSION
PROFESSION METHOD FROM


CALENDAR WEEKS
BEHAVIOR RESEARCH CO
CYCLE-146 BASE (20 MIN)
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RECORDING FLOOR
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SUCCESSIVE CALENDAR DAYS
Pennypacker
TRAINER
Edinger
ADVISER
Geiger
MANAGER
Johnson
PROTEGE
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AGE
R.D.
LABEL
SRP inc
MOVEMENT

APPENDIX E

Performance Rates for All Children Participating in the Study

TEACHER STORCH

CHILD WIMMS

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.70	9.90	13.50	0.10	0.50	0.20	2.40	4.28	6.00	0.20	0.71	0.50
4.30	8.30	12.50	0.00	0.00	0.33	3.20	7.00	10.00	0.66	1.33	3.00
5.80	12.90	13.10	0.20	0.00	0.13	2.50	7.33	10.00	0.50	1.33	2.00
5.70	9.80	12.10	0.15	0.25	0.07	3.00	8.00	7.50	0.50	2.00	1.50
5.80	15.80	12.30	0.05	0.13	0.13	2.00	7.00	3.00	0.50	2.00	1.50
4.30	5.20	7.80	0.00	0.00	0.27	4.00	4.33	8.00	0.00	0.30	2.00
4.10	13.60	6.90	0.00	0.07	0.47	12.00	2.55	5.00	0.00	0.00	0.50
6.60	13.10	9.30	0.10	0.00	0.31	3.80	4.00	5.00	0.80	4.00	0.66
11.50		8.20	0.55		0.27	2.80		5.00	0.80		0.33
10.50		7.60	0.05		0.20	5.00		4.00	0.25		1.00
10.60			0.00			4.40			0.40		
13.00			0.00								
4.00			0.00								

TEACHER STORCH

CHILD THOMAS

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.70	7.20	5.70	0.80	1.00	0.53	2.70	2.85	3.30	0.50	0.85	1.30
4.20	3.80	4.20	0.05	0.15	0.60	2.50	4.50	4.00	0.75	0.50	1.00
5.30	5.30	8.70	1.00	0.35	2.30	3.50	2.70	5.00	0.33	0.25	4.00
7.20	5.70	5.70	0.00	0.25	2.20	1.70	5.00	4.00	0.75	0.00	2.00
4.20	4.30	3.10	0.30	0.06	0.80	2.87	8.00	7.00	1.25	1.00	1.00
12.00	6.80	5.70	1.10	0.53	0.13	5.00	9.00	9.00	1.00	1.00	3.00
3.30	4.90	5.60	0.60	1.40	0.06	5.00		6.00	2.00		2.00
4.40	9.90	6.00	0.90	1.00	0.13	4.50			0.50		
4.90		5.50	0.45		0.33	3.00			1.30		
5.90		4.80	1.60		0.20	7.00			1.00		
8.10		4.00	1.70		0.20	4.25			1.00		
6.90		4.80	0.05		0.46	9.00			1.00		
7.60			0.45								

TEACHER STORCH

CHILD LESENE

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
1.90	8.50	8.70	0.40	0.00	0.94	2.00	6.00	4.00	0.20	0.50	0.50
5.10	6.60	9.90	0.40	0.05	0.13	3.80	3.70	4.50	1.20	1.00	0.00
5.20	3.30	8.50	0.00	0.50	0.50	2.00	5.70	6.50	0.40	2.00	0.50
3.40	7.80	9.90	1.90	0.30	0.40	6.00	3.00	5.50	1.00	0.25	0.00
4.80	4.20	8.20	0.20	0.13	0.40	8.00	4.00	4.50	2.00	0.67	0.00
3.00	7.70	5.10	0.30	0.13	0.00	2.50	11.00	6.00	2.00	0.00	2.00
4.60	4.50	5.60	0.40	0.00	0.20	10.00	1.60	6.50	2.00	0.80	0.00
5.70	13.00	7.10	0.80	0.50	0.50	2.70	2.00	3.60	1.30	0.50	0.33
4.80		5.30	0.15		0.08	1.80		0.50	0.20		1.00
7.10		8.90	0.50		2.80	2.70			2.40		
4.60		10.01	0.10		0.40	3.10			2.50		
9.00		2.10	0.30		0.00	4.00			1.00		
5.50			0.10								

TEACHER STORCH

CHILD KLECKLY

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.20	3.10	1.10	0.15	0.50	0.00	1.70	7.00	3.60	0.50	0.00	1.00
2.90	5.50	2.50	0.10	0.25	0.13	2.00	8.00	4.00	8.50	2.00	0.66
7.00	4.30	6.20	0.80	0.20	0.21	2.20	3.20	4.00	0.20	0.00	0.33
3.00	4.30	4.90	0.15	0.15	0.13	3.00	3.50	5.50	3.00	0.00	0.00
7.30	3.30	2.10	0.40	0.20	0.07	2.20		5.50	0.25		0.00
4.80	6.40	2.30	0.15	0.20	0.00	3.00			1.00		
3.70	4.20	2.50	0.20	0.20	0.21	3.70			0.33		
3.60		5.70	0.10		0.50	4.00			0.33		
4.70		2.10	0.20		0.00	5.00			0.00		
6.20		2.10	0.55		0.20	5.00			1.50		
4.60		8.00	0.15		0.07	3.75			0.50		
7.20		4.60	0.20		0.53						
5.40			0.10								

TEACHER STORCH

CHILD JACKSON

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.20	10.20	8.50	0.10	0.00	0.13	2.70	5.00	1.00	0.50	1.00	12.00
4.50	5.60	9.70	0.00	0.00	0.27	3.70	6.00	0.00	0.30	1.00	4.00
7.80	14.50	10.90	0.35	0.15	0.27	3.70	10.00	1.00	0.25	2.00	7.00
6.60	6.40	8.00	0.00	0.35	0.33	2.50	7.00	3.00	0.16	0.00	9.00
6.70	10.50	11.00	0.55	0.33	0.60	4.00	7.00	2.50	0.33	2.00	6.00
6.50	13.00	13.00	0.40	0.07	0.80	12.00	6.00	1.00	1.00	1.00	8.00
7.60	13.00	10.70	0.00	0.13	0.87	2.50	5.00	1.00	4.00	0.00	7.00
9.00	10.70	11.90	0.20	0.07	0.40	7.00	3.50	1.66	1.00	1.00	5.53
7.40		8.00	0.55		0.40	6.50		0.00	0.50		8.50
8.50		6.00	0.10		0.87	4.50		3.30	1.00		4.50
8.30		8.90	0.00		0.13	3.50			0.00		
9.00		4.60	0.20		0.40						
4.20			0.40								

TEACHER DARNALL

CHILD HOWELL

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.80	4.60	7.00	0.00	0.00	0.00	8.66	4.93	4.99	0.00	0.23	0.00
4.60	6.20	7.40	0.05	0.00	0.00	5.00	6.49	3.19	3.00	0.00	0.19
4.70	6.00	4.90	0.20	0.00	0.00	2.66	8.40	4.50	1.33	1.20	0.00
5.50	5.20	8.70	0.10	0.00	0.00	3.49	10.39	5.19	1.99	0.00	0.39
8.60	4.50	9.00	0.20	0.20	0.00	5.07	4.99	5.00	2.03	0.00	0.00
5.00	8.50	2.90	0.00	0.13	0.00	6.39		6.00	0.39		0.00
7.30	5.30	11.10	0.15	0.20	0.05	4.39		8.66	0.39		0.66
8.40	5.90	8.10	0.00	0.00	0.00	4.39			0.39		
6.50	6.40	10.30	0.05	0.00	0.00	3.13			0.57		
4.50	3.20	8.30	0.10	0.00	0.00	5.00			3.00		
3.20	3.40	8.50	0.15	0.00	0.00	9.00			0.00		

TEACHER DARNALL

CHILD HAGUE

SRP-BC	SRP-CC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-CC	DT-AC	DT-BI	DT-DI	DT-AI
3.70	12.50	11.70	0.05	0.00	0.00	6.00	18.00	12.39	0.54	0.00	0.00
5.40	14.50	13.30	0.00	0.00	0.00	7.08	14.00	16.66	0.54	0.00	0.00
6.60	19.00	19.30	0.20	0.00	0.00	6.75	20.30	17.00	0.75	0.00	0.00
8.40	13.80	8.20	0.30	0.00	0.00	9.22	15.19	11.29	0.45	0.00	0.70
7.60	15.70	12.50	0.30	0.00	0.70	10.61	20.00	9.27	0.00	0.00	0.18
9.30	15.30	13.70	0.20	0.00	0.10	20.40	12.75	12.99	0.00	0.00	0.00
9.00	13.10	12.20	0.20	0.00	0.35	13.00	17.00	12.30	0.00	0.00	0.30
11.10	15.00	7.50	0.40	0.10	0.00	14.00	9.00	14.00	0.00	0.00	1.00
12.00	16.70	7.80	0.05	0.00	0.00	14.40	5.29		0.90	0.00	
14.10	17.50	8.90	0.30	0.00	0.10	17.25	14.90		0.00	0.00	
12.90	14.10	9.70	0.00	0.00	0.10						

TEACHER DARNALL

CHILD BRUCE

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
1.20	5.50	6.50	0.00	0.10	0.20	5.32	7.00	4.99	0.66	1.00	0.00
2.20	8.00	8.60	0.00	0.05	0.00	6.00	6.00	5.32	1.99	0.75	0.66
4.70	8.40	8.40	0.05	0.00	0.00	5.14	7.20	5.32	0.00	1.20	0.66
5.30	6.10	11.80	0.05	0.00	0.20	6.00	15.99	5.40	0.00	3.99	0.30
4.30	7.70	15.20	0.00	0.00	0.00	6.00	9.60	9.00	3.00	1.59	0.00
6.40	6.90	7.60	0.00	0.00	0.00	9.00	9.60	8.66	0.85	0.00	0.00
6.80	10.10	10.50	0.30	0.00	0.00	4.28	3.63	3.60	0.85	1.45	1.99
3.90	5.00	11.70	0.45	0.00	0.00	6.99	7.33	6.00	0.00	0.00	3.00
4.10	8.60	12.10	0.30	0.00	0.00	5.14	9.99		0.57	1.98	
8.60	6.00	8.60	0.20	0.00	0.00	7.99			0.66		
5.10	7.50	8.90	0.00	0.00	0.00						

TEACHER DARNALL

CHILD TAYLOR

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.60	6.90	0.30	0.10	0.10	0.30	5.49	3.99	6.99	0.99	0.33	0.00
2.60	5.00	3.70	0.00	0.15	0.30	5.25	4.66	11.00	0.75	0.66	0.00
4.00	7.10	4.20	0.20	0.00	0.10	1.99	12.00	5.00	1.42	0.00	0.00
2.50	6.80	3.30	0.05	0.15	0.10	4.71	9.00	6.00	0.42	1.50	0.00
4.80	7.60	3.40	0.20	0.07	0.00	6.00	10.66	7.50	1.00	2.66	0.00
7.10	6.20	2.70	0.10	0.00	0.00	7.11	6.66	12.00	0.44	1.99	2.00
6.80	5.10	3.20	0.10	0.00	0.15	4.99	12.00		0.99	0.00	
3.30	6.30	6.50	0.15	0.00	0.15	3.49	7.99		0.49	0.66	
2.60	6.20	8.50	0.60	0.05	0.00	7.80			0.60		
5.10	6.90	8.10	0.51	0.15	0.00	6.66			0.00		
2.25	5.40	9.50	0.10	0.40	0.20						

TEACHER DARNALL

CHILD SPERRING

SRP-BC	SRP-OC	SRP-AC	SRP-BI	SRP-OI	SRP-AI	DT-BC	DT-OC	DT-AC	DT-BI	DT-OI	DT-AI
6.20	6.90	5.00	0.65	0.10	0.00	4.33	7.99	5.32	0.85	0.66	0.66
7.65	6.60	14.00	0.75	0.20	0.00	10.28	7.97	5.32	2.76	1.33	0.00
5.30	8.00	10.40	0.25	0.20	0.00	8.30	10.50	13.00	0.00	1.99	0.00
7.15	7.90	14.00	0.40	0.00	0.00	14.40	7.99	6.00	0.00	2.79	0.66
8.95	9.70	12.70	0.50	0.13	0.00	6.45	33.00	7.97	0.91	0.00	1.99
7.55	6.30	12.70	0.65	0.33	0.10	9.00	19.99	6.00	3.00	3.99	0.00
5.70	9.60	9.26	0.30	0.33	0.26	6.63	9.99	9.33	1.32	0.00	3.33
10.10	9.50	8.70	0.20	0.33	0.50	5.10	18.00	9.00	0.84	0.00	1.20
9.40	15.70	12.20	0.20	0.00	5.80	4.20	15.99		0.60	1.99	
7.00	10.80	6.60	0.15	0.00	0.00		3.49			0.00	
	10.20	4.80		0.00	0.30						

TEACHER DARNALL

CHILD RAILY

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.00	1.50	2.40	0.10	0.15	0.05	4.50	5.32	5.59	1.50	0.66	0.00
1.40	2.60	2.80	0.00	0.00	0.00	3.99	5.59	7.99	2.85	0.00	0.00
2.20	3.30	3.70	0.40	0.00	0.00	4.50	7.00	4.39	0.49	1.50	0.79
1.70	2.20	0.50	0.60	0.00	0.00	3.99	8.00	7.08	0.33	2.00	0.54
2.60	2.40	3.00	1.40	0.06	0.00		12.00			1.00	
2.50	3.00	5.20	0.10	0.00	0.05						
3.30	3.60	2.50	1.00	0.06	0.00						
2.05	3.40	2.90	0.45	0.10	0.05						
5.00	1.30	1.10	0.45	0.00	0.05						
2.30	1.70	3.30	0.35	0.10	0.05						
2.30	1.80	3.00	0.00	0.00	0.00						

TEACHER GIEGER

CHILD WEBB

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.80	3.95	5.40	1.20	0.25	0.40	4.80	6.60	5.40	0.48	1.20	0.00
4.30	4.10	4.90	0.67	0.40	0.45	6.00	5.40	6.00	0.00	0.96	0.00
4.70	3.60	5.90	3.80	0.20	0.50	6.00	5.40	4.20	0.00	0.36	0.00
5.50	4.70	4.60	0.70	0.10	0.70	6.00	5.40	4.20	1.80	0.00	0.00
5.30	4.60	6.60	0.55	0.00	0.45	9.00	3.00	6.60	0.00	0.00	0.60
5.00	5.05	5.50	1.30	0.10	0.55	4.20	9.60		1.20	0.00	
6.10	4.60		0.35	0.05		8.40	4.20		0.00	0.48	
5.10	3.30		1.05	0.00		6.00			0.00		
5.20	4.30		0.30	0.45		5.40			0.42		
8.50	4.40		0.10	0.00							
4.50	3.90		0.15	0.65							

TEACHER GIEGER

CHILD MORRIS P

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
4.77	7.45	8.30	0.61	0.15	0.10	4.80	6.00	10.20	2.40	3.00	0.60
5.70	5.90	8.50	0.68	0.30	0.30	7.80	6.00	3.00	3.00	3.00	1.80
4.70	7.90	11.00	0.84	0.40	0.60	5.40	5.40	8.40	4.20	7.20	1.20
3.60	5.10	7.30	1.00	0.30	0.50	10.20	5.40	7.80	1.20	1.20	1.20
6.20	2.90	11.10	1.20	0.35	1.35	3.00	4.80	4.20	6.00	6.00	4.20
6.30	5.30	11.80	1.40	0.15	0.50	7.80	6.00	6.00	3.60	1.30	6.00
2.10	3.50	11.00	2.20	0.20	0.45	9.00	3.60	12.00	9.80	1.80	0.00
4.90	4.20	13.20	1.90	0.10	1.10	12.00	5.40	4.80	3.00	1.20	0.60
7.70	4.70		0.45	0.05		6.60			6.00		
1.20	6.70		0.75	0.10		8.40			10.80		
13.30	8.70		0.65	0.10		20.40			4.80		

TEACHER GIEGER

CHILD MORRIS B

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
4.25	6.00	14.10	0.17	0.25	0.05	4.80	9.00	3.00	0.60	0.00	0.00
7.34	8.40	12.70	0.33	0.05	0.00	6.60	13.20	5.40	0.60	0.00	0.60
6.90	7.10	12.10	0.73	0.05	0.15	6.00	9.00	6.00	0.60	0.00	0.00
6.40	7.10	9.05	0.77	0.25	0.10	5.40	5.40	5.76	1.80	0.00	0.96
7.80	8.70	12.00	0.61	0.10	0.20	5.40	6.60	8.40	0.60	1.80	3.79
10.00	7.60	9.90	0.30	0.15	0.50	7.60	9.00	8.83	0.00	0.00	8.20
11.00	6.00	12.30	0.15	0.05	0.40	6.60	8.40	7.44	1.20	0.00	5.37
11.90	6.90	13.00	0.90	0.00	0.30	14.40	6.60	13.20	14.40	0.00	1.80
10.90	8.10		0.60	0.05		7.20	6.60		13.20	0.00	
13.90	7.80		0.15	0.05		6.00	6.60		1.20	0.00	
18.40	8.90		0.00	0.10							

TEACHER GIEGER

CHILD JOHNSON

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
5.20	4.80	2.50	0.52	0.40	0.00	10.20	4.20	3.00	0.60	1.80	0.60
4.90	2.30	1.75	0.42	0.50	0.10	9.60	3.60	3.60	1.20	0.60	0.36
5.30	1.80	3.40	0.67	0.15	0.40	4.80	3.00	7.20	0.42	0.60	0.60
3.70	3.20	2.20	0.78	0.20	0.20	6.60	5.40	9.00	0.60	0.60	0.00
2.30	3.10	3.45	0.40	0.30	0.70	5.40			0.90		
3.10	3.40	3.20	0.60	0.05	0.15	6.60			1.68		
3.20	1.30	2.05	0.55	0.20	0.40	8.40			4.80		
7.10	2.60	0.90	0.90	0.20	0.10	4.80			1.20		
3.80	3.05	1.15	0.20	0.10	0.45	3.60			0.60		
17.40	6.75		0.70	0.10		9.60			0.54		
11.40	5.00		0.50	0.20		4.20			0.00		

TEACHER GIEGER

CHILD HARDWIC

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
1.90	6.10	5.10	0.70	0.15	0.25	2.40	1.80	3.60	0.72	1.20	1.80
5.20	4.00	8.50	0.43	0.00	0.10	3.50	3.00	6.00	2.10	1.80	1.20
3.10	2.40	4.50	0.85	0.60	0.50	3.60	1.20	2.40	1.80	0.42	3.60
3.80	1.60	5.05	1.10	0.10	0.20	1.80	1.20	3.00	0.60	0.60	0.60
2.60	1.20	4.25	0.55	0.10	0.30	1.20		5.40	2.40		7.20
2.30	2.90	6.10	0.35	0.15	0.15	3.00		4.80	1.20		0.30
7.00	2.75	5.10	0.20	0.00	0.05	3.00		5.40	4.20		4.20
4.90	2.70	8.80	0.10	0.00	0.40	3.00		4.80	4.80		1.20
10.90	1.85		0.60	0.05		4.80			8.40		
9.45	3.90		0.20	0.15							
4.60	4.95		0.45	0.30							

TEACHER GIEGER

CHILD CRAY

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
1.80	5.20	1.40	0.30	0.45	0.25	1.44	0.66	6.00	1.20	3.00	3.00
2.90	3.50	5.75	0.13	0.30	0.20	2.82	1.20	3.00	0.36	2.40	0.60
3.00	3.75	3.80	0.10	0.10	0.10	1.80	2.40	5.40	0.60	3.60	0.60
4.70	3.50	5.20	0.29	0.50	0.20	1.80	3.00	3.60	2.40	0.60	3.00
6.00	3.10	8.90	0.20	0.15	0.20	2.70	3.00	6.00	0.48	1.80	3.00
8.65	4.50	7.30	0.40	0.00	0.25	4.80	3.60	6.00	2.70	0.36	1.00
8.45	6.20	5.10	0.45	0.30	0.20	3.00		1.20	3.00		1.00
13.60	4.80	3.40	0.40	0.00	2.20	1.20			3.00		
10.60	3.70	3.30	0.20	0.05	0.20	0.60			1.80		
4.50	1.90	2.30	0.90	0.00	0.30						
10.30	5.10	1.50	0.25	0.15	1.50						

TEACHER MILANICH

CHILD SOMESE

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.40	3.70	5.70	0.10	0.05	0.00	6.60	4.32	6.00	0.00	0.36	0.00
7.70	3.30	9.90	0.10	0.00	0.33	6.60	4.44	4.00	0.00	0.90	0.50
3.90	2.50	0.70	0.10	0.00	0.00	10.02	7.50	2.64	0.00	0.27	0.36
3.90	5.00	15.00	0.10	0.06	0.15	8.70	5.52	3.30	0.00	0.00	0.40
5.40	5.70	10.74	0.40	0.06	0.20	4.68	3.66	7.80	0.66	0.36	0.00
4.10	10.30	9.60	0.10	0.00	0.00	3.96	2.64	3.48	0.00	0.00	0.54
4.00	10.40	9.60	0.10	0.06	0.40	6.60	3.36		0.00	0.00	
4.30	9.30	7.90	0.30	0.06	0.00	6.60			0.00		
7.60	10.60		0.05	0.06		2.20			0.24		
3.70	7.50		0.10	0.47		4.80			0.00		
3.10	7.20		0.20	0.06							
3.20			0.25								
1.45			0.25								

TEACHER MILANICH

CHILD RUSS

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
5.10	8.70	4.70	0.70	0.25	0.33	7.20	6.00	7.80	1.32	0.54	0.98
6.60	8.40	7.30	0.60	0.06	0.33	6.00	5.70	7.02	0.66	1.14	0.00
6.50	4.70	7.70	0.50	0.06	0.10	5.34	4.98	5.19	1.98	1.50	0.39
7.30	6.20	6.40	0.30	0.06	0.50	6.90	8.70	7.80	0.99	0.66	0.00
6.10	4.80	7.40	0.30	0.33	0.00	7.50	18.96	12.00	0.49	0.00	0.96
5.70	4.20	8.10	0.40	0.13	0.30	4.98	10.98		1.00	0.96	
5.10	4.90	8.60	0.35	0.27	0.00	5.52	4.98		0.54	0.00	
6.40	7.30	10.00	0.70	0.20	0.00	7.80	7.80		1.98	0.96	
6.20	7.10	6.90	0.45	0.00	0.00	2.60			6.00		
6.10	6.30		0.35	0.20		6.96			0.54		
6.30	6.10		0.40	0.27		6.79			1.20		
6.40			0.15			6.66			0.30		
7.30			0.20			10.02			1.98		

TEACHER MILANICH

CHILD PATTISON

SRP-BC	SRP-OC	SRP-AC	SRP-BI	SRP-OI	SRP-AI	OT-BC	OT-OC	OT-AC	OT-BI	OT-OI	OT-AI
2.10	2.70	5.70	0.50	0.10	0.00	3.60	6.00	4.80	0.36	0.54	0.00
3.70	3.90	5.00	0.10	0.00	0.00	1.86	3.42	4.98	0.00	0.00	0.00
4.10	3.80	9.20	0.00	0.20	0.10	1.00	4.98	4.50	0.00	1.50	0.00
5.30	3.80	9.05	0.00	0.06	0.10	3.72	3.48	5.58	0.00	0.00	0.00
4.70	3.10	8.70	0.00	0.00	0.00	3.18	6.60	4.98	0.00	0.66	0.00
3.90	4.80	6.90	0.00	0.06	0.00	3.96		6.00	0.00		0.00
5.20	5.50	9.00	0.00	0.00	0.00	4.74		5.39	0.24		0.00
5.80	4.70	9.90	0.00	0.13	0.20	3.81			0.18		
5.90	5.40	10.70	0.05	0.06	0.00						
5.70	4.60		0.05	0.00							
3.60	6.70		0.00	0.06							

TEACHER MILANICH

CHILD LEE

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
4.70	5.10	3.60	0.20	0.20	0.06	5.20	1.98	3.84	0.00	0.66	1.02
4.60	4.70	4.10	0.00	0.20	0.27	2.34	4.68	3.66	0.36	0.66	0.66
3.30	3.70	6.15	0.10	0.13	0.25	4.38	4.32	3.96	0.42	0.00	0.66
5.20	3.50	3.60	0.20	0.13	0.60	5.52	4.69	10.98	0.00	0.00	0.00
3.70	3.50	6.60	0.30	0.06	0.00	1.74	8.40		0.00	0.00	
3.60	4.40	6.30	0.20	0.20	0.00	2.40	6.60		1.56	1.98	
2.20	5.70	8.00	0.50	0.20	0.00	3.19	6.48		0.00	0.54	
3.70	4.90	4.90	0.50	0.06	0.00	6.00			0.00		
3.00	2.20	4.50	0.30	0.00	0.10	3.13			0.00		
4.10	3.50		0.30	0.13		4.32			0.00		
4.30	2.50		0.55	0.20							
3.20			0.35								
3.60			0.45								

TEACHER MILANICH

CHILD BISHOP

SRP-BC	SRP-OC	SRP-AC	SRP-BI	SRP-OI	SRP-AI	OT-BC	OT-OC	OT-AC	OT-BI	OT-OI	OT-AI
2.60	4.10	4.00	0.20	0.05	0.00	4.38	2.40	6.00	0.42	0.00	1.02
3.50	3.90	6.25	0.40	0.13	0.00	5.52	5.22	4.98	0.54	0.42	0.52
3.90	3.30	6.70	0.20	0.20	0.00	3.60	7.98	10.98	0.42	0.00	0.96
3.70	3.30	5.30	0.10	0.13	0.05	4.32	6.48	6.50	0.00	0.00	0.05
3.30	4.40	8.40	0.10	0.13	0.00	3.00		3.60	1.00		0.00
3.90	3.30	9.90	0.30	0.13	0.00	3.96			0.00		
4.30	3.60	10.00	0.30	0.47	0.00	4.99			1.66		
4.50	3.70		0.10	0.00		3.30			0.00		
3.80	2.50		0.20	0.06							
4.60	3.40		0.10	0.13							
5.10	3.50		0.05	0.68							

TEACHER MILANICH

CHILD BEALS

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
5.00	3.00	6.55	0.30	0.05	0.30	7.90	6.60	7.15	0.66	0.00	0.00
7.60	3.80	6.60	1.10	0.33	0.25	6.33	4.98	7.80	0.33	1.00	0.00
7.00	3.20	6.80	0.10	0.28	0.15	9.00	17.96	7.96	1.98	0.96	0.00
5.60	4.50	6.30	0.50	0.40	0.30	6.00	9.18	6.00	0.39	0.42	0.00
5.10	5.30	6.20	0.20	0.13	0.30	10.66	6.48	6.60	0.00	0.00	1.98
5.80	4.80	4.70	0.40	0.28	0.00	5.52			0.54		
4.30	3.50	4.70	0.50	0.28	0.40	5.52			0.54		
4.70	2.40		0.50	0.13		10.02			0.00		
5.50	2.80		0.30	0.00		6.40			0.00		
5.20	6.40		0.60	0.20		5.34			0.00		
4.10	6.40		0.20	0.33		6.00			1.98		
5.50			0.60			6.40			0.00		
3.00			0.30								

TEACHER LABROT

CHILD HAILE

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-OI	SRP-AI	OT-BC	OT-DC	OT-AC	OT-BI	OT-OI	OT-AI
1.95	2.55	2.30	0.45	0.20	0.20	1.20	5.50	4.00	1.00	0.50	1.02
3.80	1.75	3.30	0.70	0.10	0.10	0.90	4.50	3.50	0.00	1.50	0.50
5.20	4.55	3.10	0.90	0.45	0.00	0.80	4.00	9.00	1.30	1.03	0.00
2.50	2.30	4.40	0.30	0.00	0.10	5.60		2.60	0.30		0.20
2.25	3.50	2.40	0.05	0.00	0.40	1.60			2.40		
2.25	3.60	4.50	0.30	0.10	0.20						
2.50	2.30	3.60	0.05	0.30	0.50						
2.95	2.80	2.30	0.30	0.00	0.20						
2.00			0.20								

TEACHER LABROT

CHILD ALEXANDER

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
1.90	3.45	3.00	0.05	0.35	0.00	3.66	3.25	6.50	0.33	0.00	0.00
2.75	2.35	3.30	0.00	0.20	0.10	11.00	5.00	6.06	1.00	0.00	0.02
2.65	2.50	2.40	0.20	0.10	0.00	1.70	3.00		0.44	0.00	
2.25	3.40	4.20	0.25	0.20	0.00	4.30			0.00		
1.50	2.40	3.40	0.05	0.10	0.00	2.30			0.33		
2.50	4.10	3.20	0.15	0.10	0.00						
3.50	4.20	3.00	0.05	0.20	0.10						
3.45	2.80	3.00	0.05	0.00	0.00						
3.35			0.05								

TEACHER LABROT

CHILD BURKE

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	OT-BC	OT-DC	OT-AC	DT-BI	DT-DI	DT-AI
1.95	2.00	2.60	0.35	0.20	0.00	8.00	3.20	6.50	2.00	0.00	0.00
3.75	1.55	3.50	0.25	0.05	0.30	11.00	8.30	9.02	1.00	1.30	0.04
2.55	2.85	3.50	0.10	0.00	0.10	5.20	8.00		0.00	0.00	
2.80	2.20	2.90	0.15	0.20	0.20	3.50			0.50		
1.35	2.20	2.70	0.20	0.00	0.10	10.00			0.00		
2.75	4.10	3.30	0.15	0.10	0.20						
3.20	3.70	3.70	0.40	0.01	0.10						
1.60	3.70	39.09	0.40	0.00	0.20						
2.50			0.05								

TEACHER LABRCT

CHILD BRCWN

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-CC	DT-AC	DT-BI	DT-DI	DT-AI
2.75	5.40	6.20	0.20	0.00	0.00	10.00	5.70	8.00	1.00	0.00	0.06
4.40	5.40	8.40	0.10	0.13	0.00	5.00	7.70	8.10	1.00	1.00	0.08
4.40	5.40	9.90	0.05	0.00	0.00	6.60	10.00	26.00	1.30	0.00	0.00
4.15	4.20	7.70	0.05	0.00	0.00		6.00	7.00		0.06	0.00
3.20	6.30	5.80	0.20	0.00	0.00		10.00	6.00		0.09	0.00
4.10	5.20	11.30	0.10	0.00	0.10						
3.80	6.50	11.70	0.05	0.10	0.00						
5.00	6.70		0.05	0.00							
4.10			0.00								

TEACHER LABROT

CHILD DAVIS

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
1.60	2.90	3.00	0.00	0.20	0.10	10.00	3.00	5.08	2.00	0.00	0.00
1.75	2.90	3.70	0.05	0.00	0.10	6.00	4.30		0.00	0.00	
2.95	1.90	2.80	0.00	0.15	0.20	2.60	14.00		0.66	0.00	
2.40	4.20	4.30	0.25	0.00	0.00	4.08	7.00		0.04	0.02	
3.05	3.10	3.20	0.15	0.10	0.00		5.00			0.08	
1.95	3.40	3.00	0.15	0.00	0.00						
2.95	4.00	3.90	0.15	0.40	0.10						
2.30			0.05								

TEACHER WELLBORNE

CHILD HAYES

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
10.50	7.20	15.15	0.46	0.00	0.25	17.00	12.00	20.00	4.00	1.00	0.00
8.30	10.10	15.60	1.10	0.00	0.30	6.30	12.40	24.00	2.90	0.27	0.00
5.70	11.50	14.00	0.36	0.00	0.20	11.50	21.60	32.00	0.00	0.80	0.00
7.10	15.50	16.25	0.11	0.00	0.50	7.10	18.00	15.00	0.00	0.00	0.00
7.10	10.20	13.20	0.38	0.00	0.15	15.00	8.00	30.00	0.00	1.00	2.00
7.40	12.10	10.70	0.10	0.30	0.25	13.30	11.00	21.70	0.67	0.50	0.80
7.10	13.55	10.70	0.00	0.10	0.40	11.00	16.00	16.00	0.00	0.00	1.60
10.20	15.30		0.00	0.30		13.50	26.00		0.00	0.00	
8.55			0.10			11.00			1.00		

TEACHER WELLBORNE

CHILD KELLY

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
8.00	5.20	3.65	1.00	0.10	0.05	10.00	3.50	3.30	3.00	1.00	0.00
5.20	9.00	3.25	0.40	0.03	0.10	2.20	4.40	6.50	1.15	1.10	0.50
7.00	7.60	5.00	0.60	0.00	0.00	2.00	3.30	10.00	3.50	1.00	1.00
4.50	3.00	6.15	0.38	0.00	0.10	0.50	12.00	6.00	2.50	0.00	0.00
6.90	2.60	5.65	0.36	0.10	0.00	3.80		10.00	1.33		0.00
4.50	2.20	5.75	0.60	0.00	0.20	4.00		11.30	2.00		0.67
8.00	2.75		0.30	0.05		1.60			1.60		
5.70	3.10		0.71	0.00		2.70			4.30		

TEACHER WELLBORNE

CHILD CAMPS

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
7.00	5.90	10.40	0.20	0.00	0.15	11.00	16.00	14.00	1.00	0.00	0.00
6.20	8.00	10.50	0.80	0.02	0.00	6.00	8.30	24.00	0.29	0.30	0.00
6.10	9.70	12.50	0.60	0.00	0.35	4.00	21.60	20.00	1.30	1.60	0.00
5.60	11.80	12.10	0.05	0.10	0.50	4.50	18.00	16.00	0.00	0.00	1.00
5.50	16.30	13.10	0.08	0.50	0.15	8.00	7.00	16.00	0.00	2.00	1.00
6.30	10.40	12.65	0.00	0.10	0.10	5.00	28.00	14.00	0.00	0.00	0.00
8.50	11.90		0.00	0.10		11.00	14.00		1.00	0.00	
6.10	10.50		0.00	0.05		6.50			0.00		
5.60			0.10								

TEACHER GLADSTONE

CHILD HOWELL

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-CC	DT-AC	DT-BI	DT-DI	DT-AI
10.70	8.65	13.60	0.35	0.30	0.80	7.38	7.20	7.33	0.30	0.00	1.33
17.85	13.75	16.40	0.20	0.30	0.33	8.77	8.30	5.73	0.28	0.30	0.78
13.13	16.40	7.50	0.13	0.30	0.86	7.90	10.73	5.05	0.27	1.89	0.00
15.70	28.40	12.70	0.10	0.90	0.14	6.90	14.40	6.32	1.45	9.60	0.43
19.75	20.70	12.30	0.15	0.40	0.60	9.70	6.00	9.22	0.00	1.26	1.29
14.25	14.87	25.00	0.15	0.46	0.73	6.52	6.57	8.05	1.26	0.98	1.89
17.80	9.60	26.10	0.45	1.13	0.93	8.11	12.00	8.10	1.05	2.56	0.64
11.25	15.10	15.10	0.30	0.20	0.06	9.81	8.12	7.74	0.00	0.77	0.24
18.25	17.90	9.80	0.25	0.55	0.20	4.58	7.07		0.76	2.14	
14.80	9.70	14.10	0.55	0.06	0.20	7.12	6.85		0.75	0.42	
15.20		16.10	0.15		0.40	10.85			1.14		
13.20			0.05			7.71			0.85		

TEACHER GLADSTONE

CHILD FOGARTY

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
6.05	7.65	14.90	0.25	0.15	0.06	5.40	7.33	17.14	1.20	0.66	0.00
7.05	10.33	14.10	0.15	0.06	0.13	9.33	9.99	6.61	1.33	0.00	0.00
7.30	11.50	15.50	0.20	0.00	0.13	6.66	10.28	5.59	0.00	0.00	0.39
6.00	10.10	17.90	0.35	0.20	0.06	7.86	13.00	7.55	0.82	1.00	0.44
5.45	26.30	15.60	0.00	0.00	0.53	8.56	4.61	4.36	0.00	0.00	5.45
7.05	10.55	16.30	0.15	0.06	0.40	8.56	11.32	7.99	0.00	0.00	0.36
8.20	12.97	15.50	0.05	0.13	0.06	9.33	13.00	4.73	0.00	0.00	0.00
6.85	15.68	16.70	0.20	0.06	0.00	7.50	10.80		0.00	1.20	
7.00	13.20	19.10	0.15	0.60	0.06	7.99	7.99		0.66	0.00	
7.50	11.40	12.00	0.30	0.33	0.00	8.56	6.00		0.00	0.75	
8.80	8.65		0.00	0.10		8.12	6.79		1.15	0.00	
9.35			0.00			9.17			0.00		
						6.00			0.99		

TEACHER GLADSTONE

CHILD JEFFCOAT

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.75	6.65	5.60	0.10	0.15	0.53	8.66	7.71	15.00	0.00	0.00	0.00
5.20	9.70	1.30	0.20	0.05	0.00	10.66	5.25	9.60	0.00	0.00	0.75
3.60	6.61	1.60	0.40	0.05	0.06	10.15	3.30	6.34	0.91	0.82	0.00
7.25	2.50	2.00	0.60	0.00	0.00	8.49	4.61		0.00	0.38	
7.30	8.40	2.27	0.00	0.10	0.40	5.66	5.77		0.00	0.44	
5.05	7.53	2.13	0.10	0.13	0.00	4.88	7.26		1.33	0.31	
7.25	12.40	1.90	0.10	0.00	0.13	7.99	5.79		12.00	0.00	
2.45	10.90	1.80	0.10	0.53	0.06	3.54	3.88		0.00	0.34	
2.65	6.50	4.00	0.10	0.05	0.06						
4.35	5.70	2.60	1.15	0.06	0.50						
2.10	7.10		0.10	0.53							
7.20			0.05								

TEACHER GLADSTONE

CHILD WRIGHT

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
7.80	10.35	9.20	0.60	0.00	0.13	0.60	16.50	24.00	0.60	1.50	0.00
10.20	11.70	12.47	1.05	0.25	0.06	8.68	15.27	10.15	1.23	0.00	0.00
8.35	13.60	9.10	0.60	0.15	0.80	11.42	13.50	13.20	0.57	0.00	0.00
6.50	10.30	6.30	0.25	0.00	0.27	11.59	12.00	11.14	0.39	0.66	0.00
6.55	8.50	7.10	0.55	0.10	0.66	12.00	12.00	14.52	0.10	0.00	0.66
8.20	10.80	6.70	0.45	0.26	0.26	7.00	9.60	15.22	0.00	0.00	0.00
8.50	13.26	8.10	0.10	0.26	0.00	21.60	17.64	14.66	2.40	0.00	0.66
6.95	10.08	5.30	0.45	0.26	0.06	21.66	8.72		0.00	0.00	
4.55	11.47	14.30	0.10	0.26	0.00	15.27	2.40		0.00	0.00	
10.05	9.20	8.90	0.15	0.13	0.26	12.00	16.80		1.20	4.80	
5.40	12.85	8.20	0.05	0.10	1.13		8.40			1.20	
5.20		11.75	0.15		0.40						

TEACHER GLADSTONE

CHILD JONES

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
7.55	9.80	7.33	0.60	0.75	0.73	5.71	9.33	8.72	0.57	1.33	0.00
8.10	6.05	5.70	0.65	0.42	0.33	14.40	10.80	6.00	1.20	0.00	0.00
7.75	6.60	7.50	0.55	1.15	3.50	9.91	9.00	9.81	1.03	1.50	0.00
8.30	8.00	2.70	0.35	0.60	0.80	10.80	9.99	17.14	0.00	0.00	0.00
8.55	9.50	6.60	0.40	1.10	1.06	12.00	9.33	7.33	0.60	1.33	0.00
6.05	7.53	14.90	0.65	0.26	7.40	9.81	12.00	7.99	1.08	1.00	0.49
5.50	7.13	7.70	1.40	0.33	0.06	13.63	7.33	4.64	1.36	0.66	0.77
4.70	9.33	8.80	0.45	0.60	0.20	10.00	12.00	9.33	2.00	0.00	3.99
7.50	7.33	7.10	0.65	0.60	0.46	8.56	6.60	7.38	0.00	0.60	0.91
5.10	5.75	4.90	0.10	0.60	0.86						
5.55	5.40	0.80	0.45	0.26	0.56						

TEACHER GLADSTONE

CHILD BROWN

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
8.45	12.70	12.70	0.30	0.20	0.26	9.19	8.72	5.48	0.00	0.54	0.00
14.50	17.15	18.50	0.45	0.10	0.33	8.61	11.17	10.73	0.91	0.00	0.31
14.05	21.65	17.70	0.55	0.15	1.60	10.87	13.26	6.77	0.37	0.00	1.26
13.25	16.30	12.70	0.00	0.10	1.20	10.50	1.20	7.71	0.00	1.33	1.42
13.05	19.60	19.40	0.30	0.00	0.66	11.00	7.44	10.00	0.28	0.00	0.00
13.90	14.50	18.70	0.55	0.13	7.00	10.08	8.56	9.53	0.48	0.34	4.30
12.02	23.20	12.70	0.20	0.40	1.00	9.75	17.25	15.42	0.00	0.00	0.00
14.50	21.70	21.10	0.15	0.06	0.60	9.28	7.65	13.71	0.00	0.30	0.85
15.25	23.40	18.10	0.45	0.20	0.20	14.82	7.20		0.00	0.39	
12.50	14.10	18.60	0.20	0.20	1.80	14.79	5.17		0.39	0.20	
18.80	11.13		0.15	1.20							
18.40			0.20								

TEACHER KANOV

CHILD LANGSTON

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
4.50	5.60	9.15	0.18	0.35	0.05	3.38	5.46	14.00	0.30	1.63	2.00
7.30	6.30	16.70	0.55	0.15	0.05	5.20	6.28	7.55	0.40	1.71	1.33
7.45	5.75	13.70	0.25	0.55	0.05	5.30	7.04	6.66	1.33	0.70	0.00
5.05	6.40	15.50	0.60	0.10	0.05	5.76	9.02	12.67	0.48	0.00	0.70
5.85	7.35	15.45	0.20	0.05	0.00	5.33	8.62	8.33	0.00	0.00	1.06
6.15	6.10	8.00	0.35	0.10	0.20	5.14	9.00	6.73	0.00	0.00	1.03
6.95	6.80	9.30	0.30	0.10	0.05	9.13	8.33	4.16	2.15	0.00	2.60
7.15	10.00	9.90	0.15	0.00	0.05	7.98	11.11	13.00	0.76	0.85	4.50
6.60	8.30	6.85	0.05	0.00	0.05	8.43	4.86	15.49	0.00	0.37	2.81
6.40	9.10	6.20	0.15	0.00	0.00	14.45	3.22	24.00	0.00	0.46	6.66
8.40	11.35	8.30	0.30	0.00	0.00		8.52			1.16	

TEACHER KANOV

CHILD WILLIAMS

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
6.50	8.20	7.55	0.50	0.15	0.10	9.60	12.28	4.69	0.80	0.00	0.00
9.00	9.15	3.00	0.05	0.15	0.35	10.66	7.79	10.85	0.00	0.00	0.00
13.20	10.45	13.70	0.05	0.10	0.15	8.04	12.96	9.81	0.20	0.00	0.36
13.20	9.50	7.50	0.05	0.15	0.35	8.62	10.84	6.40	0.63	0.00	0.00
11.25	9.75	9.20	0.05	0.05	0.05	7.90	11.20	11.66	1.58	0.00	0.83
7.00	10.65	10.10	0.50	0.00	0.00	11.44	10.68	6.63	1.20	0.00	0.00
10.15	8.15	11.60	0.30	0.05	0.00	11.60	9.63	10.59	0.40	0.00	1.38
10.25	13.15	10.65	0.10	0.00	0.50	10.59	15.89	15.30	0.00	0.66	1.63
8.60	7.40	11.25	0.25	0.00	0.25	10.40	11.94	21.42	0.80	0.00	0.00
9.90	11.75	13.25	0.20	0.25	0.10	14.04	1.26	10.14	1.23	0.00	0.20
9.00	10.45		0.65	0.05			10.84			0.00	

TEACHER KANOV

CHILD HATHWAY

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
4.60	4.60	7.20	0.10	0.45	0.00	8.36	5.06	8.18	0.00	0.63	0.45
5.20	5.70	14.15	0.75	0.40	0.05	11.96	8.09	6.61	0.00	0.95	0.41
4.50	6.90	7.45	0.20	0.25	0.10	15.18	8.18	12.04	0.00	0.00	0.00
6.75	4.50	6.90	0.25	0.15	0.00	12.03	7.40	5.28	0.00	0.00	0.00
3.45	5.95	8.55	0.80	0.30	0.00	7.33	4.60	7.94	2.00	0.00	0.24
5.45	6.90	8.10	0.65	0.10	0.10	13.63	8.12	19.69	3.03	0.00	3.03
4.70	5.70	6.65	0.20	0.35	0.00	10.25	7.46	5.57	0.00	2.98	0.00
6.55	6.75	10.80	0.20	0.20	0.00	10.52	12.12	6.00	0.00	0.00	1.20
6.15	9.60	7.55	0.40	0.05	0.10			11.50			1.50
7.00	9.85	10.85	0.30	0.05	0.00			8.41			0.62
8.45	7.60	6.10	0.20	0.10	0.20			18.00			0.00

TEACHER KANOV

CHILD CARVER

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
5.90	6.25	8.15	0.80	0.20	0.40	5.03	6.16	13.63	0.00	0.75	0.00
6.85	6.50	6.80	0.15	0.10	0.75	12.00	8.80	17.33	4.00	1.60	1.33
6.95	5.45	6.45	0.45	0.20	0.20	11.42	11.96	2.73	2.28	1.00	0.00
5.60	4.05	7.20	0.80	0.25	0.30	5.50	8.91	1.58	0.92	0.00	0.00
5.80	6.35	7.15	0.55	0.05	0.40	6.66	8.22	6.01	1.00	0.38	0.00
5.40	6.20	7.50	0.35	0.00	0.20	8.00	8.86	10.59	1.14	0.00	0.92
5.20	7.30	8.35	0.10	0.00	0.05	8.80	13.25	10.85	2.40	0.00	0.57
7.35	7.70	7.90	0.25	0.00	0.05	12.04	6.91	9.33	0.00	0.92	2.66
7.20	8.05	7.80	0.80	0.05	0.05	10.41	0.90	6.91	0.52	0.00	1.38
7.10	5.10	7.25	0.30	0.00	0.10	16.00			0.80		
8.35	4.95	7.65	0.50	0.05	0.20	13.43			0.00		

TEACHER KANCV

CHILD BALLARD

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
10.66	15.10	12.90	0.50	0.00	0.00	12.00	15.25	13.00	0.40	0.84	4.00
13.90	12.90	11.45	0.40	0.20	0.00	4.00	12.31	16.54	0.00	0.00	0.75
13.15	13.75	15.60	0.75	0.00	0.05	15.66	14.85	11.27	1.00	0.00	0.72
13.75	14.30	14.15	0.65	0.10	0.05	17.00	13.79	14.02	1.00	0.25	0.00
13.55	13.00	10.70	0.45	0.10	0.10	16.66	16.52	9.02	2.77	0.00	0.75
12.35	11.35	9.35	0.45	0.05	0.00	17.46	15.34	19.53	0.60	0.86	0.00
13.25	12.85	9.35	0.40	0.05	0.00	22.80	16.66	16.00	2.17	0.00	0.00
11.80	13.35	12.20	0.40	0.05	0.05	19.40	12.44	9.00	1.49	0.00	0.00
15.85	13.75	8.85	0.05	0.00	0.10	11.96	10.98	21.83	1.53	0.00	0.70
14.25	8.80	11.20	0.15	0.00	0.00	18.49	9.15	12.20	0.68	1.17	1.03
15.00	11.55	16.60	0.10	0.00	0.00	15.51	11.08		0.00	0.00	

TEACHER KANOV

CHILD ALLEN

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
0.46	4.05	3.55	0.14	0.25	0.05	4.10	6.00	3.72	0.00	0.50	1.24
5.25	0.42	4.35	0.30	0.35	0.25	8.70	2.10	4.54	0.00	0.31	0.84
4.75	0.30	6.95	0.10	0.15	0.00	6.00	5.80	8.19	1.20	1.70	0.00
0.35	2.25	10.75	0.40	0.30	0.05	7.30	5.08	9.30	0.67	0.00	6.60
3.75	0.31	0.88	0.45	0.10	0.00	4.00	5.10	8.27	0.67	0.58	2.25
0.32	6.05	14.55	0.55	0.05	0.00	4.30	2.92	12.00	0.00	1.00	9.60
3.05	3.05	11.55	0.70	0.05	0.00	5.20	3.14	5.11	0.00	0.52	4.43
0.37	0.61	14.55	0.75	0.00	0.00	5.60		9.15	0.80		5.63
0.42	0.43	12.55	0.70	0.00	0.15	5.10		6.85	3.80		0.00
3.05	0.45	0.49	0.50	0.00	0.10	6.90			1.70		
4.75	0.49	0.45	0.45	0.00	0.15						

TEACHER SUTTON

CHILD YOUNG

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.20	7.10	7.05	0.10	0.05	0.00	4.20	4.80	11.40	1.20	0.00	0.42
3.10	4.50	7.20	0.50	0.15	0.05	3.60	7.80	6.30	1.20	0.00	0.00
4.70	7.00	9.90	0.30	0.00	0.05	3.00	12.00	12.00	0.30	0.00	0.00
2.80	6.70	6.20	0.10	0.10	0.00	3.00	12.00	6.80	0.20	0.00	0.00
5.70	6.60	14.00	0.30	0.25	0.00	2.60	9.00	7.20	0.60	0.00	0.00
4.80	4.30	10.10	0.10	0.05	0.00	4.00		18.00	0.50		0.00
5.70	5.20	13.00	0.20	0.15	0.00	3.60		6.40	0.60		0.60
7.20	5.60	11.70	0.30	0.05	0.00	4.80		9.00	0.80		0.00
5.60		11.80	0.10		0.10	3.00			0.00		
6.60			0.10			4.80			0.40		
8.40			0.15								

TEACHER SUTTON

CHILD WILLFORD

SRP-BC	SRP-OC	SRP-AC	SRP-BI	SRP-OI	SRP-AI	OT-BC	DT-OC	DT-AC	DT-BI	DT-OI	DT-AI
4.20	4.90	4.50	0.20	0.30	0.30	4.20	4.20	7.80	1.80	0.60	1.20
3.80	3.30	4.70	0.70	0.25	0.15	3.60	3.60	6.60	0.36	0.36	0.60
3.80	3.10	5.10	0.80	0.25	0.30	3.60	12.00	5.40	0.60	0.00	0.48
3.50	3.60	4.50	1.00	0.50	0.15	4.80	8.40	4.80	0.60	0.60	0.42
3.70	5.00	5.00	1.00	0.35	0.00	4.80		10.80	1.80		0.00
3.50	4.00	5.50	0.50	0.55	0.35	1.80			3.00		
3.70	6.00	6.00	0.80	0.40	0.05	2.40			0.60		
4.80	4.70	4.80	1.00	0.60	0.00	4.20			1.20		
3.10		5.70	1.00		0.30	2.40			1.20		
3.60			0.50								

TEACHER SUTTON

CHILD NATTIEL

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-OC	OT-AC	OT-BI	DT-OI	DT-AI
2.30	5.80	8.30	0.40	0.00	0.00	6.00	5.40	9.00	0.30	0.00	0.00
2.00	3.50	6.70	0.30	0.05	0.05	6.00	6.00	6.00	1.20	0.48	0.00
4.80	5.30	7.00	0.30	0.00	0.05	3.00	5.40	4.80	0.60	0.00	0.60
2.40	4.10	6.50	0.20	0.05	0.05	3.00	6.00	7.80	0.60	0.00	0.30
4.00	5.90	6.90	0.30	0.00	0.20	1.20	18.00	3.60	0.60	0.00	0.00
2.70	3.70	10.80	0.10	0.00	0.00	2.40		12.00	0.60		0.00
5.00		5.10	0.10	0.00	0.00	3.00		18.00	0.60		
4.30		7.70	0.10	0.05	0.00						
4.10			0.10								
4.40			0.25								

TEACHER SUTTON

CHILD HINES

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.40	5.30	6.40	0.70	0.15	0.20	3.00	3.00	4.80	1.20	0.30	0.36
4.00	2.90	6.30	0.60	0.05	0.10	3.00	3.60	7.20	0.60	0.36	0.30
4.20	5.70	5.40	0.50	0.15	0.30	3.60	12.00	6.00	0.60	0.00	0.48
3.90	4.00	6.50	0.20	0.30	0.10	5.40	12.00	7.20	0.60	0.00	0.54
3.40	4.50	8.05	0.30	0.00	0.15	4.20	6.00		0.60	0.60	
3.40	7.40	5.30	0.30	0.10	0.30	2.40	18.00		0.24	0.00	
3.80	6.60	5.10	0.20	0.05	0.20	4.20	7.00		0.00	0.00	
2.80	5.50		0.10	0.30		3.00			0.00		
6.10			0.40			4.80			0.60		
4.10			0.10								

TEACHER SUTTON

CHILD GODBOLT

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.70	3.10	5.20	0.60	0.50	0.25	4.80	4.80	0.60	1.20	0.00	0.48
2.90	2.80	6.30	0.50	0.40	0.20	1.80	3.60		1.20	0.60	
3.60	3.60	6.50	0.40	0.20	0.10	4.80	2.40		3.00	0.00	
2.10	2.90	3.30	0.70	0.30	0.20	1.80	3.60		1.80	1.20	
3.50	2.50	2.90	0.90	0.30	0.10	2.40	3.00		1.20	0.60	
2.30	2.90	3.50	0.50	0.40	0.05	3.60	3.60		1.20	0.36	
3.20	5.10		0.50	0.25		4.20	4.80		1.20	0.00	
2.90	4.05		0.60	0.30							
3.60			0.60								
3.70			0.50								
2.60			0.25								

TEACHER SUTTON

CHILD FORD

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.60	4.10	0.75	0.20	0.50	0.40	4.80	3.60	6.60	0.48	0.42	0.48
2.00	4.50	0.75	0.50	0.50	0.20	3.60	4.20	6.60	0.60	2.10	1.20
3.20	4.60	0.93	0.90	0.40	0.30	1.80	6.00	3.60	1.20	0.00	0.60
2.40	4.60	0.67	1.00	0.10	0.40	2.40	6.00	4.20	0.96	0.60	0.60
2.90	5.85	0.68	0.50	0.35	0.30	3.60	6.00	10.80	1.20	1.80	0.00
2.10	3.80	0.75	0.40	0.30	0.30	3.60	12.00	7.20	0.96	0.00	2.40
4.50	0.68	0.66	1.00	0.80	0.50	3.60		5.40	1.20		1.20
3.60	0.51	0.77	0.50	0.45	0.80	3.60			0.30		
5.10			0.40			4.20			0.30		
4.80			0.70								
3.70			0.50								

TEACHER WEBBER

CHILD HOWARD

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.30	2.25	4.20	0.00	0.10	0.20	7.33	1.25	6.66	1.33	0.20	9.33
7.65	5.50	4.33	0.05	0.40	0.06	1.26	0.76	2.60	1.60	1.15	0.25
10.15	3.50	4.33	0.10	0.20	0.06	2.59	0.37	2.28	11.55	0.31	0.28
10.50	8.60	7.80	0.30	0.05	0.06	4.95	1.86	1.24	4.87	0.55	0.99
9.25	4.66	4.80	0.25	0.33	0.00	4.24	1.50	3.60	9.67	15.00	0.19
11.00	3.53	3.40	0.05	0.13	0.00	13.54		1.44	7.70		0.24
6.45	3.66	9.25	0.00	0.26	0.10	3.85		12.75	4.08		0.70
5.70	3.05	8.65	0.40	0.10	0.00	3.40			6.66		
5.03	5.13	9.90	0.00	0.13	0.10	6.66			1.44		
5.25	4.86	4.05	0.05	1.13	0.10	1.08			3.44		
2.65		10.45	0.65		0.05	3.44					
3.10		8.75	0.20		0.10						
1.15			0.10								

TEACHER WEBBER

CHILD FOGARTY

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.10	2.30	7.20	0.05	0.15	0.00	2.86	3.24	1.66	0.00	0.97	0.82
2.30	2.60	0.30	0.20	0.15	0.00	2.11	1.61	3.64	0.70	0.53	0.51
2.45	2.15	5.73	0.00	0.00	0.13	1.63	2.74	2.77	0.32	0.54	1.73
4.25	6.25	3.33	0.20	0.15	0.00	3.83	1.65	1.14	0.34	0.99	0.82
2.50	6.53	4.20	0.05	0.06	0.20	0.60	4.05	1.33	4.50	0.86	0.29
4.40	5.06	5.65	0.20	0.00	0.05	1.83	1.81		1.67	0.49	
5.65	6.73	3.70	0.40	0.00	0.00	4.89			0.00		
5.75	7.35	5.60	0.00	0.15	0.00	1.74			1.24		
3.95	8.46	2.05	0.20	0.06	0.05	1.50			0.82		
0.38	4.93	3.10	0.30	0.06	0.00	4.52			1.12		
2.35		4.65	0.30		0.05						
3.10		3.65	0.40		0.10						
2.50			0.10								

TEACHER WEBBER

CHILD BASS

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.80	4.35	10.60	0.10	0.10	0.33	0.60	6.24	7.99	0.00	0.00	0.00
3.15	5.65	4.33	0.25	0.10	0.20	4.41	6.72	12.00	0.00	0.00	4.50
3.70	6.45	6.33	0.15	0.15	0.26	4.90	5.80	8.30	0.54	0.00	0.00
3.10	6.25	4.93	0.15	0.15	0.13	3.55	7.99	7.82	0.00	0.00	0.00
3.00	0.70	4.95	0.15	0.13	0.15	6.16	12.00	7.99	0.00	0.91	0.00
5.05	8.33	7.25	0.45	0.13	0.15	7.53	9.84	7.99	0.00	0.00	0.00
3.01	6.33	5.90	0.20	0.00	0.25			4.39			0.00
2.35	7.10	6.35	0.15	0.15	0.15			18.00			0.00
4.50	7.93	6.25	0.15	0.13	0.25						
2.50	6.40	4.15	0.15	0.13	0.15						
4.45		4.20	0.50		0.20						
4.25		3.75	0.20		0.30						
3.10			0.00								

TEACHER WEBBER

CHILD SMITH J

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.30	2.00	0.20	0.00	0.01	0.00	10.15	2.57	1.74	1.84	0.00	0.00
6.55	1.65	1.66	0.20	0.00	0.00	1.81	2.41	5.17	1.80	0.26	0.77
6.30	2.10	0.86	0.25	0.00	0.13	2.49	1.69	3.09	0.22	0.30	1.27
3.10	4.80	2.60	0.00	0.10	0.00	0.92	1.56	1.66	0.39	0.22	0.60
3.25	3.00	1.90	0.00	0.20	0.15	1.77			0.31		
2.10	2.73	0.95	0.05	0.13	0.00	4.70			0.00		
0.80	1.53	7.68	0.00	0.00	0.18	1.37			0.45		
2.05	2.25	4.50	0.35	0.00	0.20						
5.01	1.53	7.30	0.05	0.00	0.45						
2.15	1.60	4.13	0.10	0.00	0.15						
1.10		5.90	0.10		0.00						
2.15		3.95	0.00		0.00						
1.30			0.05								

TEACHER WEBBER

CHILD SHOUPE

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
1.95	3.20	1.73	0.20	0.06	8.30	2.65	6.00	3.69	0.29	1.99	0.25
3.15	4.15	3.20	0.40	0.00	6.12	3.22	3.21	2.44	0.24	0.58	0.05
5.05	3.25	2.46	0.20	0.40	4.32	5.45		1.08	2.72		0.05
3.90	2.10	0.13	0.05	0.00	3.36			1.11			0.05
4.70	4.46	4.26	0.25	0.26	4.32			1.62			0.60
7.50	0.30	1.20	0.00	0.20	3.81			0.00			0.06
3.75	4.20	0.75	0.70	0.06							0.06
3.35	4.20	2.30	0.25	0.00							0.05
3.80	3.53	2.73	0.45	0.00							0.00
0.30	1.46	0.50	0.20	0.00							0.00

TEACHER SHEA

CHILD BERRY

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.80	0.90	7.00	0.75	0.25	0.60	4.00	1.42	0.75	4.00	1.57	0.10
7.80	9.30	5.50	0.52	0.35	0.40	1.20	1.20	3.20	1.20	0.20	0.25
3.60	7.30	10.70	0.26	0.30	0.30	5.50	7.50	0.75	2.50	0.50	0.50
4.33	3.80	3.70	0.16	0.00	0.00	1.00	0.86	0.66	6.00	0.06	2.33
5.94	10.70	8.30	0.87	0.40	0.00	1.85		0.10	0.70		1.30
6.56	7.60	10.34	0.31	0.30	0.80	2.25		1.20	1.75		0.00
5.62	13.60	8.10	0.25	0.30	0.20	2.00			1.25		
3.80	7.70	12.70	1.80	0.10	0.20	2.60			0.66		
2.50	7.80	7.40	0.15	0.20	0.30						
5.90	9.50	11.90	0.05	0.30	0.50						
		9.90			0.50						

TEACHER SHEA

CHILD WALKER

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.60	6.75	7.80	0.70	0.10	0.30	2.00	2.00	3.28	2.00	1.33	0.14
5.72	5.50	15.80	0.88	0.58	0.00	3.50	1.28	5.00	2.50	0.57	0.00
4.55	6.15	11.00	0.22	0.05	0.20	4.00	1.20	4.00	0.00	0.50	0.50
6.64	6.10	12.20	0.29	0.05	0.20	0.50	1.40	4.00	2.50	0.00	3.66
7.05	7.85	9.70	0.27	0.05	0.00	2.33	1.60	2.33	2.00	0.40	2.33
6.35	12.20	12.20	0.47	0.30	0.30	1.53	2.16	4.00	0.92	0.03	3.00
7.60	14.10	12.20	0.25	0.10	0.20	1.40	3.00	1.75	1.20	0.00	2.75
6.25	7.00	10.20	0.20	0.30	0.35		2.60	4.00		0.00	2.00
4.30	14.50	11.40	0.25	0.30	0.00						
	9.05	14.70		0.25	0.40						
		15.90			0.40						

TEACHER SHEA

CHILD JAMES

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
2.75	5.65	10.90	0.20	0.00	0.20	6.00	12.00	4.00	0.00	1.00	1.00
6.10	4.25	11.20	0.15	0.25	0.20	10.00	12.00	9.00	0.00	0.00	0.00
4.61	6.25	9.10	0.16	0.30	0.30	14.00	5.20	5.00	0.25	0.20	0.00
5.78	5.70	10.40	0.33	0.10	0.10	13.00	11.50	13.00	0.00	0.00	0.00
6.25	4.75	8.90	0.05	0.05	0.20	8.00	5.00	12.00	0.50	0.00	0.00
7.27	8.60	12.00	0.05	0.20	0.50	12.00	9.00	8.00	0.00	0.00	0.00
7.10	8.00	10.20	0.10	0.05	0.00	10.00		8.00	0.20		0.00
7.20	9.20	11.00	0.05	0.10	0.35	2.75		9.00	0.00		0.50
4.35	8.20	9.80	0.05	0.30	0.17						
4.05	11.00	12.00	0.15	0.25	0.30						
		7.00			0.10						

TEACHER SHEA

CHILD STEWART

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
3.50	7.10	7.60	0.05	0.05	0.00	8.00	12.00	5.00	0.00	1.00	0.00
4.84	8.30	8.20	0.15	0.05	0.10	10.00	4.00	9.00	2.00	0.25	0.00
4.94	6.80	11.10	0.33	0.00	0.00	11.00	6.66	9.00	0.00	0.00	0.00
4.57	8.80	12.70	0.68	0.05	0.00	6.00	10.00	14.00	0.00	0.00	0.00
4.26	1.33	10.40	0.15	0.00	0.00	10.00	13.00	7.00	0.01	0.50	0.00
4.52	8.40	10.80	0.00	0.00	0.10	12.00	11.50	10.50	0.00	0.50	0.50
4.94	10.50	9.60	0.52	0.00	0.00	2.00	13.00	12.00	0.25	0.00	0.00
5.15	9.50	11.25	0.10	0.00	0.00	10.00	6.50		0.00	0.50	
5.10	8.60	6.80	0.05	0.40	0.10		11.50			0.00	
7.35	10.40	11.50	0.00	0.20	0.00						

TEACHER SHEA

CHILD BROWN

SRP-BC	SRP-DC	SRP-AC	SRP-BI	SRP-DI	SRP-AI	DT-BC	DT-DC	DT-AC	DT-BI	DT-DI	DT-AI
1.40	6.20	11.30	0.20	0.35	0.40	3.00	2.71	3.40	0.25	0.71	2.00
2.90	6.66	7.30	0.25	0.70	0.20	1.50	2.33	11.00	2.50	0.20	5.00
3.05	6.40	9.40	0.25	0.30	0.10	3.60	1.60	11.00	0.33	1.00	5.00
4.44	6.40	9.80	0.38	0.15	0.10	2.75	7.00	2.50	0.00	0.33	3.50
3.11	6.30	15.40	0.17	0.25	0.50	3.00	9.00	3.00	4.00	1.00	2.00
5.75	5.20	11.80	1.12	0.10	0.10	1.75	4.00	3.50	0.75	0.00	5.50
5.21	6.30	12.80	0.63	0.30	0.10	2.33	3.00	4.00	0.33	3.00	0.55
5.10	8.50	9.20	0.17	0.20	0.40	5.55	12.00	2.50	0.50	2.00	2.00
4.60	8.00	15.90	0.30	0.20	0.00		7.50	2.00		4.50	1.50
4.50	8.40	11.00		0.30	0.10			5.00			2.00
		9.10			0.30			3.00			3.66

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BIOGRAPHICAL SKETCH

Dennis Lloyd Edinger was born March 18, 1943, in Portland, Oregon. He attended public schools in Wheat Ridge, Colorado, and was graduated from Wheat Ridge High School in 1961. From 1961 to 1964 he served in the U.S. Army Security Agency (AIS) with the 79th U.S.A.S.A. Special Operations Unit (AAFJOG), Shemya Island, Alaska; and at the 12th U.S.A.S.A. Field Station, Chitose, Japan. He holds the Good Conduct Medal and a Presidential Unit Citation.

Following his honorable separation from active duty, he enrolled in Colorado State College, where he received his B.A. with Honors in 1966. In 1966 he was awarded an NDEA Title IV Fellowship at the University of Florida, where he actively pursued the degree of Doctor of Philosophy. During the summer of 1967, he was Research Assistant to Professor Ogden R. Lindsley, Special Education Research, University of Kansas Medical School, Kansas City, Kansas.

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This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Education and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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